

Clean Air Strategy for Alberta



Report on the Regional Sessions

Volume II: *Verbatim Transcript*





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Report on the Regional Sessions

Volume II: *Verbatim Transcript*

This document is Volume II of the three-volume *Report on the Regional Sessions* and is the *Verbatim Transcript* of the public meetings. Volume I is the *Moderator's Report*. Volume III, parts one and two, are the *Written Submissions*. Part one is submissions from governments, industry and individuals and part two is from public interest groups and schools. Volume I has wide distribution and may be obtained at the address below. Volumes II and III, parts one and two, are on file at many public libraries for public access and for inter-library loan.

ISBN 0-86499-831-7
Pub. No. I/417
1990-91

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This document is a preliminary report on the results of a study conducted by the author. It is intended to provide a general overview of the findings and to invite discussion and criticism. The study was conducted in the field of [illegible] and the results are presented in the following sections. The author is grateful to the [illegible] for their support and to the [illegible] for their assistance in the study.

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 Date: [illegible]
 Author: [illegible]

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Transcript of Proceedings

Regional Meeting

Held at Bonnyville, Alberta, on
Tuesday, November 6th, 1990

Court Reporter



Transcript of Proceedings

(Meeting commenced at 7:15 p.m., Tuesday, November 6th, 1990)

MODERATOR MILLARD: Well, ladies and gentlemen, let me say welcome to you. This is the first of a series of regional meetings. The attendance isn't large tonight, but that probably provides us with an opportunity to have a good dialogue. The subject, of course, is the Clean Air Strategy for Alberta.

My name is Vern Millard, I have been asked to moderate the meetings, and it's been suggested to me that I provide some opening comments to give a kind of broad overview, and that's what I would like to do right now, and if you have any questions when I am running through my comments don't hesitate to interrupt and ask questions. What I have done is to provide a number of overlays that I think might provide a kind of a basis for discussion of the general subject of Clean Air Strategy.

The important place to start, of course, is what do we mean by a Clean Air Strategy, and if you follow the research of scientists, it's been going on for some decades really, but particularly in the last decade I think it's clear that our planet is in some degree of difficulty, primarily through man-made emissions. There is a growing consensus, it's not universal yet but a growing consensus among scientists,

that emissions need to be reduced.

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The Clean Air Strategy is designed to encourage the public discussion of these very vital issues in terms of our society, not only today but perhaps in particular for the future for our children, and for us that are really old, our grandchildren. The Clean Air Strategy will identify the most important issues, it will develop practical approaches for reducing emissions, and it will recommend policies and programs to achieve those objectives.

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The Clean Air Strategy for Alberta is a four-stage process. The first stage of that process was what was a workshop that was conducted in September of this year, at which time representatives of industry, environmental groups, public health, research, and government people reviewed the problems associated with emissions. The workshop identified key issues and options that related to a Clean Air Strategy. One of the comments that I have heard from people who were at that workshop was the fact that they were somewhat amazed at the degree of agreement, the consensus that action needs to be taken and emissions need to be reduced.

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The second stage of the process is what we are engaged in tonight, meeting in regional meetings throughout the province. And there are what,

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Susie, five or six of these meetings? 1

SUSIE WASHINGTON: Eight. 2

MODERATOR MILLARD: Eight, sorry, to get the views of 3
local people in terms of these particular issues. Then, 4
next spring, there will be a meeting or a workshop to 5
consider the various ideas that have come forward; and 6
finally, there will be a report that will be forwarded 7
to the government. So that's the four-stage process 8
that this is part of. 9

In thinking about a Clean Air 10
Strategy, it seems to me that the first point we want to 11
consider are what are the major problems that our 12
environment or our planet faces today? As I mentioned 13
before there's been, over the last two or three decades 14
and beyond that really, a substantial amount of 15
scientific research that has been going on, and the 16
general trend of this research has been the overall 17
confirmation that there are problems. 18

I was noticing in the paper this 19
week a report on a conference that was attended by 700 20
scientists in Geneva just over the weekend in which they 21
were reviewing global warming, and there was consensus 22
that this was and is a very serious problem for our 23
planet in the future, and that we really need to do 24
something about it by reducing emissions. The thrust of 25
the newspaper article was that unless we do that, we can 26

look forward to increasing average temperatures, which 1
have pretty serious impacts over the long run for our 2
planet, the melting of the ice cap, higher levels of 3
water in the ocean, and all the things that go with 4
that. So the consensus, broadly speaking, is that we 5
have some problems on a long-term basis. 6

There are three major problems 7
that we can identify, and there are others, but I would 8
like to focus in on three. The first is the greenhouse 9
effect or the so-called global warming. It's caused by 10
emissions of carbon dioxide into the atmosphere. Those 11
gases trap the energy that's naturally radiated from the 12
earth, and hence results in increasing temperatures on 13
the surface of the earth. Fossil fuels and water are 14
the major sources of the greenhouse gases which cause 15
the problem, and the emissions of greenhouse gas occur 16
both in terms of producing fossil fuels, and also in 17
terms of using fossil fuels, so it's a double-sided 18
coin. 19

We are privileged to have a 20
drawing by Kate, who depicted what the greenhouse effect 21
really looks like, and as you can see, the green circle 22
depicts the edge of the earth, the outer circumference 23
of the earth, and the black line above that is what 24
would normally be the limit of greenhouse gases, and 25
then over on the right-hand side it shows the impact of 26

increases in those greenhouse gases and the returned 1
radiation to the earth, and consequently the increase in 2
temperature. 3

We have talked about the first 4
major problem that we have in terms of emissions to the 5
atmosphere. The second problem is acid precipitation or 6
acid deposition, frequently called acid rain. It's 7
received a good deal of publicity over the last decade 8
in particular. We have heard about the problems of its 9
impact in Eastern Canada, in United States, and more 10
recently impacts in Eastern Europe. 11

Acid rain is caused by sulphur 12
oxides and nitrogen oxides being emitted to the 13
atmosphere. Sulphur oxides really, in Alberta, stem 14
from the processing of our fossil fuels; sour gas, sour 15
oil, and coal for the generation of electricity that has 16
sulphur entrained in it. Nitrogen oxides stem from 17
general industrial development, but also from consumer 18
operations such as motor vehicle operations, the cars 19
that we drive each day. 20

The third major issue or problem 21
with respect to clean air and the Clean Air Strategy is 22
smog. It also has received a fair amount of publicity 23
over the last decade or two. We have tended to 24
associate it, I think, with other areas such as Los 25
Angeles, however, it occurs in Canada. If you look at 26

the data you will see that it occurs in Ontario more 1
particularly than in Western Canada, but Calgary and 2
Edmonton are not immune, and if you have looked at the 3
skyline in either city you will see that yellow cloud 4
that sometimes hangs over the city. So there is a 5
potential problem that exists there. It also is caused 6
by fossil fuels and nitrogen oxides. Nitrogen oxides, 7
in particular, is a major contributor. So it is one of 8
the list of one of three major problems that we have to 9
deal with. 10

In looking at a Clean Air 11
Strategy, and after identifying the problems, one might 12
well ask "well what is being done to solve the 13
problems?" I think it's important to recognize that 14
action is being taken, not just on the local scene but 15
more particularly on a global scene, on an international 16
scene, and there are a series of international 17
committees and workshops and conferences that are 18
leading to action with respect to the these problems. 19

Sulphur oxides were part of a 20
discussion, through the U.N., that took place in 1985, 21
and as you probably remember there is an agreement, by 22
the parties, to reduce the volume of SO₂ that was being 23
emitted to the atmosphere; nitrogen dioxide, there was 24
an agreement in 1988; carbon dioxide, the international 25
scene is considering policy options, but in Canada the 26

governments have adopted a target and the provinces and 1
the Federal Government, as I understand it, are working 2
towards it. Really, that's perhaps one of the driving 3
forces with respect to the Clean Air Strategy. Of 4
course, a major factor in what can and what is being 5
done is continuing research into the whole question. 6

Another issue that we need to 7
address in terms of developing a Clean Air Strategy, I 8
think, is how does Alberta fit into the total picture, 9
what is our role, and what is our degree of contribution 10
to the problem? 11

One of the important factors that 12
Albertans have to recognize is that we are a major 13
producer of fossil fuels. In the case of gas, Alberta 14
produces 83 percent of the total Canadian production; in 15
oil it's 80 percent; in coal it's 44 percent. Really, 16
partly as a result of that kind of production, Alberta's 17
share of the emissions is relatively significant or 18
relatively large in Canada. For example, sulphur 19
dioxide is 15 percent of the total of the Canadian 20
total; nitrogen dioxide, the Alberta share is 23 21
percent; and the carbon dioxide, it's 22 percent. Those 22
numbers can probably be compared to our share of the 23
population, which population is roughly 10 percent, so 24
that we end up with a relatively high contribution or a 25
relatively high per capita emission rate. But I think 26

we have to recognize certain things. 1

An important factor is that 75 2
percent of the oil and gas that's produced in Alberta is 3
delivered to markets in Eastern Canada or the United 4
States, so I think one can argue -- I am not sure if 5
everyone would believe it or agree with it -- but I 6
think one can argue that the emissions that take place 7
in Alberta are really on behalf of consumers that, in 8
part, live outside the province. Canada's share of 9
carbon dioxide, and probably I would think nitrogen 10
oxide, is about 2 percent of the total world emissions. 11

Fossil fuels are obviously a very 12
important factor to the province on an economic basis. 13
In 1989 the value of energy produced in the province, 14
oil, gas, and coal, was about \$15 1/2 billion, the 15
royalties paid to the provincial government were \$2.4 16
billion, which is about 24 percent of the total 17
provincial revenue, so it's a significant factor from 18
that point of view. The energy industries account for 19
about 250,000 direct or indirect jobs in the province, 20
so fossil fuels and their production and use are 21
significant for the province. 22

I think that one of the 23
interesting aspects of this question is that clearly we 24
are all, each of us, you and I, involved in this process 25
or involved in this problem. We can see that the 26

burning of fossil fuels has a significant impact on the 1
environment, and particularly the long-term impacts for 2
our globe and atmosphere, but the sources for those 3
emissions are brought in the industrial side, the 4
production side, and also in the consuming side, and as 5
consumers we all partake of that same kind of activity. 6
We all drive our cars, we all heat our homes with gas or 7
some other fossil fuel, and so we are all part of the 8
problem. It isn't the kind of case where we can 9
attribute the cause to some other party. There are a 10
variety of us that are involved in it, and if we are 11
going to find answers to the problem, we all have to be 12
involved. 13

If we look at CO/2 and NOx 14
emissions for example, on a rough basis the energy 15
industry, the processing of energy resources, requires 16
about a third, or contributes about a third of the 17
emissions, other industrial development accounts for 18
another third, and our own public consumption accounts 19
for another third. So we are in it, and if we are going 20
to solve the problem, we have got to be part of that 21
answer. 22

The next question is what do we 23
really mean by "clean air"? And the definition that we 24
have used to date, I think I am right in this, other 25
people will perhaps correct me, but my understanding is 26

that we accept, as clean air, air that may contain other 1
impurities, such as emissions from fossil fuel burning, 2
but as long as those emissions do not cause adverse 3
effects upon human health or vegetation or materials, we 4
consider it to be clean air. 5

When you think about that 6
definition and when you relate it to the kind of 7
problems that I was referring to before, namely these 8
long-term global problems where 10 or 20 or 50 years 9
from now the continued emission of fossil fuel gases 10
into the atmosphere may cause this warming trend, and 11
with the consequences that follow from that, it seems to 12
me that perhaps we need to change the definition. The 13
definition really doesn't allow for these long-term 14
global impacts such as the greenhouse effect, and thus, 15
even if we assume that Albertans today have clean air -- 16
and I know that there are probably some people that 17
would quarrel with that assumption but if we just make 18
that assumption -- then we still aren't really 19
addressing the problem because, even under that 20
assumption, we are still emitting substantial quantities 21
of fossil fuel gases into the atmosphere which have this 22
long-term effect and can cause these problems that we 23
have been referring to. 24

So we really must still reduce 25
the emissions of these gases to the atmosphere if we are 26

really going to have clean air in a definitional context 1
that will be long-term, or that will deal with the long 2
term, maybe I should put it that way. 3

Well how can we reduce emissions? 4
That's the burning question, no pun intended I might 5
say. The basic alternatives are, first, to produce less 6
energy. If we shut down our oilsands plants or our 7
heavy oil production or our conventional oil industry or 8
our gas industry, obviously we would produce less 9
energy, we would have less emissions, and that would be 10
one way -- a pretty drastic way but it would be one 11
way -- of meeting that target. 12

Another way is for us 13
individually to use less energy, and we all, I am sure, 14
know what that means; we don't drive as far, we don't 15
heat our homes quite as much, etcetera. 16

Another way is to use the energy 17
we use more efficiently; and the typical examples are 18
better insulation in homes, more efficient utilities, 19
and so on. 20

And lastly, we can shift to 21
non-polluting energy sources. The things, the 22
alternatives that come to mind are solar energy, 23
biomass, etcetera, and I think we can all see how these 24
could have an impact on the amount of energy used and 25
improve the total, reduce the total emissions. Clearly, 26

some have more drastic impacts than others. 1

Obviously, there is a time factor 2
that is involved here, because one can't turn the world 3
around overnight, and probably, in thinking in terms of 4
solutions, we may well need to think in terms of 5
combinations of these alternatives rather than just one 6
or the other. 7

The next question is how can we, 8
as individuals, reduce emissions? Remember I was 9
referring, before, to the fact that we are all part of 10
the problem because we all use energy for a variety of 11
uses in our own lives? Now that's really the purpose 12
for our regional meetings. We really want to get the 13
views of you that are present in this meeting, and in 14
the subsequent seven regional meetings that are going to 15
take place, and find out what you think about how we can 16
reduce emissions, and we need your suggestions and 17
advice to develop some policies. 18

Education I am sure we would all 19
accept as a major factor, but I guess you will always 20
have the problem of how is this going to be achieved. 21
How can we become convinced, individually, that we need 22
to change our lifestyle in terms of reducing emissions. 23

Well, finally we come to the last 24
point, and that is what policies and programs are 25
required for an effective clear air strategy, Clean Air 26

Strategy, clear and clean. Your suggestions will assist 1
in this process. 2

Some possible developments, and 3
by making suggestions I don't intend to preclude any 4
ideas that you want to bring forward, but possible new 5
developments are new standards, new more stringent 6
standards in terms of what might be emitted, both in 7
terms of the production side and also in terms of the 8
consumption side, for example automobile standards that 9
require or that specify much more stringent emissions 10
from operation. 11

Another possibility might be 12
limiting total emissions in a particular area so that 13
when new plants come into that area they would, in 14
effect, have to trade in some fashion to obtain a piece 15
of that total airshed emission amount or quantity. 16

Incentives to develop new 17
technology, because we talked before about one way of 18
reducing emissions is to improve efficiency, and new 19
technology is the essence of reducing or improving 20
efficiency. 21

Another possibility is to change 22
the current financial incentives, some people might say 23
disincentives, and put in place those that will provide 24
benefits for and encourage the use of less energy rather 25
than more. Of course, expanding research is a major 26

feature in terms of this kind of activity because it's, 1
to a large extent or to a significant extent it's 2
technically oriented. If we can develop new models, new 3
ways of doing things, that can have or could have a 4
major impact in terms of the emissions from our 5
lifestyle. 6

Well that's a very rough overview 7
of what might be thought of as the problems related to 8
developing a clear and clean energy strategy. 9

We don't have a great deal of 10
people out tonight, but let me ask you first of all if 11
anyone in attendance wishes to make a submission? I 12
don't see a great flurry of activity on that question. 13

Since there are few people, why 14
don't we see if we can engage in some kind of a dialogue 15
on the topic and see what kinds of comments and 16
questions and suggestions come out of it? Would someone 17
like to open the discussion? 18

Let me ask you this, those that 19
are here that are much more knowledgeable than me about 20
this area; are there issues, in terms of that overview 21
and I suppose particularly the emphasis that I may have 22
misrepresented to some degree, that you would like to 23
quarrel with or comment on? 24

GARY TOWSLEY: I would like to just make one 25
comment, and I am relatively ignorant on this fact, is 26

about the air quality in Alberta and particularly in our 1
urban areas. 2

I was talking with the, I don't 3
see the gentleman here that was driving the vehicle, the 4
mobile air quality vehicle, and in discussing it with 5
him today he was stating that Calgary indeed has some of 6
the worst air quality in Canada due to inversions, and 7
during these periods of inversions it's worse than 8
Vancouver or Montreal or Toronto, and to such an extent 9
that the yearly average is indeed worse than some of 10
these cities. 11

So I guess I would challenge the 12
statement on there that we don't have an urban air 13
quality problem. After all, you know, 20 percent of 14
Albertan's live in Calgary. 15

MODERATOR MILLARD: No, I don't think I said we don't 16
have an urban air quality problem, I think I said that 17
Calgary and Edmonton have problems from time to time. 18
But I am not sure how who you were talking to in Alberta 19
Environment. Why don't they, that particular person, 20
comment on this particular issue? 21

BOB MITCHELL: He has taken the bus back to 22
Edmonton. I read some literature where I believe the 23
ground level ozone is above the standard set by 24
Environment Canada less than ten days a year in Calgary, 25
and somewhere around half of that in Edmonton. Those 26

are the only two centres that exceed it on any given 1
days. 2

RANDY DOBKO: Actually, it's only about two 3
days, Edmonton is only about one day. That's the latest 4
information we have got. 5

So the air quality relative to 6
some of the large urban centres, as in Vancouver and 7
down east in Toronto and Montreal, in Edmonton/Calgary 8
it's better but there are still problems during certain 9
times of the year. I think that's what the other 10
gentleman who was in the monitoring bus was trying to 11
get across. We have a problem. It's not as extensive, 12
but it is still there, so it is not -- it's only a 13
matter of degree. 14

MODERATOR MILLARD: I guess the important question is 15
how do we solve that problem? I think we have to accept 16
that it exists. Those of us that live in Calgary or 17
Edmonton see the evidence of it, and I presume that 18
probably the greatest contributor is the motor vehicle 19
traffic that takes place in the area, and what do we do 20
about that? What would you suggest that, as a policy, 21
that would help in that particular issue? 22

GARY TOWSLEY: I think the solution is somewhat 23
self-evident, really. It's removing the internal 24
combustion engine from the downtown areas. 25
Unfortunately, implementing it is politically highly 26

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unpopular, and I don't think we have the will, within 1
government, to inflict the inconvenience and the pain on 2
people to reduce the emissions. I would like somebody 3
to comment on that? 4

MODERATOR MILLARD: Anyone like to comment? 5

BRIAN DEHEER: Well I would like to make a 6
comment in support of criticizing the internal 7
combustion engine, and one of the places that I see an 8
opportunity for addressing that concern is research and 9
incentives for alternative means of transportation. 10

One example that I know of that 11
is available on the market in some places is the 12
electric car. There is a person that I work with in St. 13
Paul -- I am from St. Paul -- who is quite interested in 14
converting a vehicle that he has to electric power, and 15
in places for instance like in Calgary, a significant 16
number of the population in the city using an electric 17
vehicle to commute between home and work, I think, could 18
make a significant dent in the emissions that are 19
produced there. 20

MODERATOR MILLARD: What about increasing or more 21
stringent auto emission standards? Do you see that as 22
being a potential answer to some of this? 23

BRIAN DEHEER: I guess I would have to say I am 24
not familiar enough with the standards that are in 25
place, and what increasing the stringency of the 26

standards would result.

1

GARY TOWSLEY:

Without trying to dominate here,

2

a standard is only -- is not enforced. When a vehicle

3

drives out of the showroom, it obviously meets the

4

manufacturer's standards. Within a few short years,

5

this same vehicle can be an oil-spewing polluter. It's

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difficult, although we have seen checkpoints on the roads

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in Calgary and pulling over unsafe vehicles and

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polluting vehicles.

9

MODERATOR MILLARD:

Yes?

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BRIAN DEHEER:

I could add that one measure that

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I think I would support which might also be politically

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unpopular is a tax on gasoline to compensate for the

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amount of pollution that burning of gasoline is

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producing. I know that taxes these days are quite

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unpopular, however, I guess I believe strongly that we

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have taken for granted the environment and the benefits

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of the environment, haven't been paying a fair share for

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the environmental damage that that's produced, so I

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would see it as globally ethically just, I suppose, to

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impose a tax on the burning of gasoline.

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SUSIE WASHINGTON:

Just a point of clarification.

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When you talk about a tax being on gasoline, do you see

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that as the consumer, that is you and I, paying more for

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burning gas which would encourage us to use less

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gasoline? Is that what you are saying?

26

BRIAN DEHEER: Yes, that's what I am suggesting. 1

SUSIE WASHINGTON: Yes. 2

DON HENNESSEY: But if we took the tax dollar 3

that we got, can we clean this up? Right, the damage is 4

there. Have we got a method in place to clean it up, 5

because as a taxpayer my personal feeling is by the time 6

the bureaucracy is done with the money, we are not 7

getting done what we maybe should be. Like, is there a 8

method today in place where we could go into Calgary and 9

Edmonton, and instead of having two bad days a year in 10

Calgary we could make it one? Is that a reality, or no, 11

we are already past that point? 12

RANDY DOBKO: The problems, you have to 13

understand that air quality is measured by a number, six 14

parameters within the City of Edmonton, City of Calgary. 15

Now when it was indicated that you have two problem days 16

it's over a level, over the guideline level that has 17

been set out, so number 1, you would have to know which 18

level was exceeded. I believe in Edmonton it was the 19

concentration of dust that was inhalable particulate 20

matter in the air. That's not an easy problem to solve. 21

In Calgary the problem tends to be one of carbon 22

monoxide I believe, and again, you couldn't turn around 23

and spend tax dollars to reduce it at this moment, it's 24

more long-range, better emission controls on vehicles. 25

That's Calgary's problem. But you couldn't turn around 26

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tomorrow and spend money and be done with it, over and 1
done with the problem. 2

GUY HURTUBISE: I guess the tax dollars would be 3
spent on research and development. 4

RANDY DOBKO: It's a long-term commitment that 5
you have to make and you have to, because the tax 6
dollars that you spend have to be focused on the major 7
problem, and then once you have solved that, then you 8
can turn around and start going at the smaller problems, 9
but right now you are trying to identify what that major 10
problem is. 11

DON HENNESSEY: Personally, with young children, 12
I am for pushing the education, because in reality in my 13
mind, I can't see this taking off this year or next year 14
or five years, it's almost going to take a full 15
generation. If we started with the kids today, which we 16
are to some degree, then by the time that they were of a 17
major decision-making age, that we would not only have 18
the problem more defined, but the people educated 19
enough, through a lifetime in it, to handle it better. 20

TOM WHARTON: There is one other thing that's 21
happening in the States too that has to do, I think, 22
almost as a carry-over from the '70's and the big oil 23
price increases when we went into smaller vehicles and 24
reduced emissions and that type of thing at that time. 25
I think it was Golden Gate Bridge where they had toll 26

lanes, and those vehicles with more than one driver in a 1
vehicle, that was three or four drivers, got through 2
toll free. I believe that was an incentive to try and 3
reduce the number of vehicles coming into the downtown 4
area, but it's pretty hard to do in a place like 5
Edmonton or Calgary. 6

DON HENNESSEY: They still have them. 7

GUY HURTUBISE: Yes. 8

TOM WHARTON: The other point is, I suppose, on 9
the electric car thing is you would have to look at what 10
kinds of problems are you creating producing batteries 11
for these electric vehicles? There are some balances 12
there. 13

SUSIE WASHINGTON: You mean what kind of electricity 14
we are using to, when you plug in your electric car? Is 15
that the -- 16

TOM WHARTON: The manufacture of the batteries 17
themselves takes energy. 18

RANDY DOBKO: The production of electricity 19
also takes energy. 20

TOM WHARTON: And the production of 21
electricity. 22

MODERATOR MILLARD: Other comments, suggestions? 23

DON HENNESSEY: It's my understanding, from an 24
Alberta Environment employee, that Fort McMurray has bad 25
air from the two plants. Are their emissions over from 26

the two plants, or are they within guidelines which is 1
compounded, or -- 2

RANDY DOBKO: They are underneath what they are 3
licensed for, yet they have localized air problems, a 4
lot of odour complaints which do not have standards, 5
which is one of the problems, and it's making some 6
attempt to deal with it, a whole odour protocol setup. 7
We are going to track emissions and try to zero it back 8
to sources. A lot of their problems are not necessarily 9
over regulation levels or over their licence levels but 10
it's in the minds of some groups, specifically the 11
Indian bands, it's the odour problem. They are much 12
more concerned with long-range health effects, which are 13
very difficult to quantify. 14

There can be localized problems 15
from the plant upsets and those, when identified, will 16
be taken back to the plant and quick action would have 17
to be taken to deal with it, as just recently Suncor was 18
given an emission control order. I am not sure what 19
they were required to do, but it was felt that action 20
had to be taken because they had a problem and weren't 21
moving quickly enough to deal with it. 22

JOHN CRISP: Could I just refer back to your 23
city problem? Something I have not heard as yet. Would 24
it be possible, I am from a local town here so I ask the 25
question, is it possible to pass and enforce a local 26

bylaw which would restrict certain areas of a 1
municipality simply by law enforcement methodology, 2
fines, etcetera? You can't, perhaps, enforce stricter 3
emission controls all across the province, but you may 4
be able to control the amount of traffic in a certain 5
area of a municipality. 6

MODERATOR MILLARD: I really don't know. I would -- 7
it would seem, offhand, that there would be problems 8
with it, but I wonder if maybe somebody from Alberta 9
Environment could comment on what Los Angeles has done 10
in terms of dealing with issues like this? Am I right 11
in assuming that they have imposed a series of special 12
requirements? Do you happen to know? 13

RANDY DOBKO: At this point Los Angeles, or the 14
State of California, has the most stringent emission 15
control standards for new vehicles anywhere in the world 16
I believe, and it's a requirement on all motor vehicles. 17
The question is do you retrofit everything back, and is 18
it -- how do you get people, like someone suggested here 19
tonight, two years down the road, even if it meets 20
manufacturer's specifications in the showroom, two years 21
and no maintenance performed on it, it may not meet that 22
standard or requirement. So you can set those 23
guidelines or set the standards from a manufacturing 24
point of view, but unless there is a specific program in 25
place for enforcement or just indicating to people 26

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whether or not their vehicle runs up to specification, 1
it's difficult to control. 2

SUSIE WASHINGTON: I would think, with respect to 3
bylaws, that if a municipality wanted to pass a bylaw 4
that banned automobiles from the downtown core, that's 5
within your jurisdiction to do so. Things like that 6
are. 7

JOHN CRISP: Thank you. That's correct. 8

BOB MITCHELL: Or to ban diesel vehicles from 9
certain areas of a community. 10

DON HENNESSEY: Do diesel engines emit more than 11
gas? 12

RANDY DOBKO: They have a higher particulate 13
emission, and I believe NOx is equivalent, carbon 14
monoxide is fairly equivalent. I am not quite sure 15
offhand. 16

MODERATOR MILLARD: To what extent do you believe 17
your friends and associates are aware of this problem? 18
Is it, you are out tonight, you obviously have some 19
concern with respect to it. Do you see yourselves as 20
being somewhat unique, or are you representative? 21
Anyone like to comment? Yes? 22

BRIAN DEHEER: I would say that I suspect we are 23
probably representative of the population in general. 24
To the extent that most of us are 25
aware that there are global problems, global atmosphere 26

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problems and that it's becoming more urgent for some 1
action to be taken on these problems, I guess I might 2
reflect on the turnout here tonight and the fact that 3
it's sort of small as being a reflection of the fact 4
that a lot of people around here don't see that we in 5
the area have a particular air problem here and we don't 6
play a large role in generating the emissions in this 7
area. So there would be those two comments that I would 8
make. 9

MODERATOR MILLARD: Are there other comments or 10
suggestions as to -- 11

LARRY CUNNINGHAM: I have got a comment. The fellow 12
mentioned the global problem. You have your 2 percent, 13
Canada's 2 percent of the world, and Alberta is quite a 14
small percentage of that. I feel we should be pushing 15
to make it more of a global problem and handle it as 16
such, whereas if we push it on a local basis or a 17
provincial basis, we may be pricing our industries out 18
of a competitive range. 19

DON HENNESSEY: Somebody has got to start the 20
ball rolling I guess. 21

LARRY CUNNINGHAM: Yeah, that's what I was thinking, 22
push the global issue, more that it is a global problem 23
and treat it as such. 24

MODERATOR MILLARD: If agreements were reached 25
between countries would that help your, as to what each 26

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of them would do, would that help your concern? 1

LARRY CUNNINGHAM: Well, for industry to be 2
competitive, you have got to be working in the same 3
parameters. 4

MODERATOR MILLARD: And of course if there was 5
agreement, -- 6

LARRY CUNNINGHAM: Yes. 7

MODERATOR MILLARD: -- then that would be the case, 8
assuming they started from the same level? 9

LARRY CUNNINGHAM: Yes. 10

MODERATOR MILLARD: Well there is no doubt it's a 11
complex problem. Other comments? Susie? Oh, sorry? 12

BRIAN DEHEER: I would respond to the previous 13
comment about, I think you were asking for suggestions 14
on how to convince people that some actions are needed, 15
and I personally value the slogan and try and follow the 16
slogan of "think globally, act locally", and so for that 17
reason I think of myself in the position of being a 18
consumer, and as a consumer, I try and think of things 19
that I can do. 20

And, actually, I'll use that to 21
lead into my next point, which was on alternative fuels. 22
That is something that I have thought about a great 23
deal, and I am aware that there are alternatives to 24
gasoline fuel that I could convert my car to, for 25
instance propane and natural gas. Propane is now quite 26

readily accessible in most places, so that would be one 1
alternative. Natural gas would be another, although I 2
am not familiar with how readily available that is. 3

One of my questions about those 4
two, though, is that aren't they also fossil fuels and 5
don't they also still produce the same kinds of 6
emissions and to the same levels? 7

MODERATOR MILLARD: Would somebody from Alberta 8
Environment like to respond? 9

RANDY DOBKO: Natural gas and propane are 10
smaller-chain hydrocarbons. Yes, they are still fossil 11
fuels, but they do burn cleaner, they would produce less 12
emissions, but unfortunately they don't have the energy 13
content that gasoline does for the same unit volume. 14
Gasoline, being a liquid, has more energy in a tank than 15
what propane or natural gas would, so you are giving up, 16
in some cases, convenience and the accessibility to the 17
fuel, but they are a somewhat cleaner fuel and would 18
produce less carbon dioxide for the amount burned. 19

They still have problems, they 20
are still fossil fuels, and you haven't completely 21
eliminated emissions of carbon dioxide or carbon 22
monoxide or oxides from nitrogen. 23

BRIAN DEHEER: Once those tradeoffs are 24
balanced, how does the end result differ? I drove up 25
here from St. Paul, I will drive back. Would I have 26

emitted less pollutants if my car was powered on propane 1
or natural gas? 2

RANDY DOBKO: I believe you would be emitting 3
less carbon dioxide. 4

GARY TOWSLEY: Are you sure on the carbon 5
dioxide? I think the straight geometry of that is that 6
you are still going to have to make the carbon dioxide, 7
but your emissions are NOx, and you're -- 8

RANDY DOBKO: Well, just the fact that natural 9
gas and propane are cleaner burning would limit carbon 10
monoxide. 11

GARY TOWSLEY: Right. 12

RANDY DOBKO: And -- 13

GARY TOWSLEY: Right, but not carbon dioxide. 14

RANDY DOBKO: Not carbon dioxide. The other 15
thing is how hot does natural gas burn, or propane as 16
opposed to gasoline in the internal combustion engine. 17
Once you can figure that out, you could get an idea how 18
much NOx is emitted. Again, I don't have all these 19
figures off the top of my head. 20

DON HENNESSEY: But, and I don't own one, but 21
it's my understanding that people that are burning 22
propane are getting more miles per gallon of propane 23
than they were on gas, so that you are at least using 24
fossil fuel more efficiently, and I don't even know if 25
that's true because I don't own a propane vehicle, but a 26

lot of people are converting for that reason. That's my understanding. 1 2

GARY TOWSLEY: The economics of it definitely 3
favour propane. All the vehicles, all the taxi cabs in 4
Calgary that are still in business use propane, so the 5
economics are there. It is a cleaner burning fuel, but 6
it is not tackling greenhouse gases to the extent that 7
you still have outrageous carbon dioxide. 8

RANDY DOBKO: It's still a problem with respect 9
to emissions of greenhouse gases. You haven't 10
eliminated them. There are other fuels, alternate 11
fuels, that would get away from that, but any fossil 12
fuel would generate carbon dioxide to some extent. 13

DON HENNESSEY: Well, what's an alternative fuel? 14

RANDY DOBKO: Hydrogen. It is something that 15
has been proposed and there is a study to be done by 16
Environment Canada trying to convert, or trying to make 17
Canada a hydrogen economy base or energy source of 18
hydrogen, but it's in the planning stage. It's 19
long-term research you can look at. 20

DON HENNESSEY: What's long-term, 5, 10, 20? 21

RANDY DOBKO: Any number. If enough time and 22
effort is directed towards that goal, it could be as 23
short as 5, as long as 25. 24

BOB MITCHELL: The problem, I think, with 25
hydrogen is it takes energy to produce it, so it's not a 26

source, it's just a currency.

1

BRIAN DEHEER:

Despite those problems, though,

2

from everything that I have heard and read about

3

hydrogen, that's certainly quite an appealing solution

4

to me, and if I was able to convert my car to hydrogen

5

and was able to buy it, you know, pretty much

6

everywhere, I would do that at the drop of a hat, and I

7

would definitely support anything that any of the

8

governments are going to do that would try to move us

9

towards a hydrogen economy. I would give my firm

10

support to that.

11

BOB MITCHELL:

How would you produce hydrogen?

12

BRIAN DEHEER:

Preferrably by renewable energy

13

sources like solar and wind energy. Those are two, I

14

guess, that I have read the most about and favour the

15

most.

16

Since I have mentioned wind

17

energy, I would like to add that here in Alberta I think

18

that's something that could be capitalized on to great

19

advantage, because there is a lot of wind in the

20

province. Every time I walk out my door in the winter

21

and it's windy, I think "I wish I had a windmill going

22

somewhere, it would make me feel warmer", because in

23

fact, if I was able to set up a windmill say in the back

24

yard of my house and have a generator running on that, I

25

think I would try and do that.

26

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In St. Paul, everybody seems to 1
have windmills, you know, set in their yards, but they 2
don't generate any electricity, they just sit there and 3
look nice, so I would like to have one that sits there 4
and looks nice, but also helps to power my car, heat my 5
home. 6

MODERATOR MILLARD: Other comments or suggestions? 7

Susie, do you have anything you would like to say? 8

SUSIE WASHINGTON: What do you folks think about 9
current regulations? Are they adequate? Do you want to 10
see them improved? Are you happy with the way that 11
government is managing them? Do you think they need to 12
be better enforced? Do you think companies should be 13
recognized who do better than provincial standards? 14
What's your sort of reading on all that? Do we need to 15
be regulating other things or not? Now I know you folks 16
in the energy industry have an opinion on this. 17

LARRY CUNNINGHAM: I was thinking, I do quite a bit 18
of reporting to Alberta Environment for Clean Air and 19
Water, those acts, and I think they do a good job. We 20
do send in a lot of data, and there is a lot of 21
communication going on on what we emit, how we emit it, 22
and how we are monitoring it. 23

You mentioned something about 24
maybe recognition of somebody that's doing above that. 25
I am not too sure if we are, or if we are not, but that 26

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is, a lot of companies are looking for PR, they want to 1
project a good image, and if they are recognized as 2
going beyond, it would be a selling point. 3

MODERATOR MILLARD: Interesting comment. Any other 4
comments or suggestions? 5

AL BREKKE: Yes. I would say that somehow 6
you could encourage incentives rather than taxes, you 7
know, incentives somehow to use less energy such as the 8
toll bridges that someone mentioned, or car pool express 9
lanes where you can travel a lot faster if you have more 10
people in your car because there is an express lane and 11
you don't have to stay back in the traffic. Those kind 12
of incentives, I think, are a lot better than taxes, and 13
it is something that people relate to a lot better than 14
sort of the penalty side. 15

GARY TOWSLEY: I echo that, and the incentives, 16
especially as they could apply to public transportation. 17

 I am recently moved to this area, 18
but lived in Calgary the last period of time. Comments 19
like that are much more pertinent for the urban centres. 20

 But recently I was listening to 21
one of the managers in Edmonton Transit commenting on 22
the Blue Sky Day, and his position was that the transit 23
riders should be bearing the full cost of their riding 24
that and paying for that, whereas when I was riding the 25
bus you would look out and consistently see almost every 26

vehicle with one person in it and you are saying to 1
yourself, you know, "why, I am making a contribution 2
here by riding public transport, he is not helping or 3
subsidizing, if he wants that privilege of driving one 4
car perhaps he should be subsidizing a better public 5
transit system". If it was better, more people would be 6
leaving their cars. 7

TOM WHARTON: I guess another thing might be 8
related to what the gentleman here said with respect to 9
the use of propane or natural gas or something like that 10
as a fuel. An incentive might be that the licence 11
plates and registration would be less money, which 12
wouldn't hurt. It's a little thing, but it recognizes 13
it. 14

DON HENNESSEY: I am sure, in provinces like 15
Saskatchewan where you have government insurance, you 16
could get \$10 off too, or whatever the case may be, just 17
as another incentive. There's probably a lot of little 18
things to do. 19

 But there is one comment. The 20
word "government" has come up very few times tonight. 21
Maybe it's only in my head, but we forget that we are 22
the government. We have got the vote, we make the 23
government, and it's up to us. We can't put fingers on 24
Alberta Environment, or the Federal, or the American. 25
We are the government, and I think it still has to go 26

back to education, that we have to start educating 1
first. 2

MODERATOR MILLARD: Any other comments? 3

SUSIE WASHINGTON: Everybody has focused a lot on 4
the transportation side of things because it's obvious 5
we are all very dependent on cars, but what about things 6
like maybe changes in building codes or, you know, 7
household-efficient appliances, things like that? Is 8
that something that you think we should, you know, we 9
collectively need to be looking at? Are those important 10
elements to consider in a new strategy, or do you think 11
that they are so, the gains are so modest that we should 12
be addressing some of the other, more immediate 13
problems? 14

DON HENNESSEY: It's already started, though, 15
hasn't it; the car that gets better fuel economy, the 16
dishwasher that takes 10 amps instead of 15, the hand 17
drill. 18

SUSIE WASHINGTON: You think it's already started 19
then? 20

DON HENNESSEY: Well Larry already commented the 21
free enterprise is there. You have got to keep up or 22
there is somebody beating you to the punch. 23

GUY HURTUBISE: And it's certainly a selling 24
feature. 25

DON HENNESSEY: And they advertise things like 26

this. I think it's started. 1

SUSIE WASHINGTON: Anybody want to talk about how we 2
are going to pay for all this good stuff? 3

GUY HURTUBISE: I think that was mentioned a 4
couple of times, that there is two ways of looking at 5
it. There is, I believe, providing incentive for the 6
energy-efficient homes, vehicles, whatever; and possibly 7
some type of a tax, as much as I hate taxes, on the ones 8
that aren't or aren't doing anything about it. I think 9
the combination of the two should almost balance each 10
other. 11

 And certainly, it would certainly 12
encourage, when you are talking about transportation and 13
living in the city, I would suspect that if I had free 14
transportation or close to free transportation, my car 15
would be sitting at home. There is no doubt about it. 16
If you combine those two with a guy, a single person 17
driving, paying a little bit of tax to cover the person 18
that's using public transit, I think it's a trade-off. 19

BRIAN DEHEER: I would add to that, also, that 20
hopefully some of the gains that are made with more 21
efficient appliances or transportation would also result 22
in lower costs, so hopefully that would make those 23
alternative means of transportation or appliances more 24
affordable, over the long run, for the consumers. 25

JOHN SHIRES: How about the convenience of 26

public transportation? Any comments from people in 1
terms of any apparent restrictions that prevent people 2
from recognizing that as a legitimate alternative? Is 3
it as convenient, notwithstanding the cost for example, 4
to set that particular aside, which decides that 5
particular issue? 6

LARRY CUNNINGHAM: It will never be as convenient. 7
But I know, if I look at taking the bus to Edmonton for 8
a trip, it costs me just as much so I take my car. If 9
that bus to Edmonton was a third of the price, I could 10
give up some convenience for that. But that's the way I 11
look at it, I am ready to give a bit, but I am not going 12
to go out and give it all. 13

GUY HURTUBISE: I would suspect that there would 14
be a time frame there where the convenience may not be 15
there, but once there is more usage, the convenience 16
could be increased or the inconvenience decreased. 17

JOHN SHIRES: That's a good point. I was 18
thinking about that myself. 19

And Don, just carrying on on your 20
point one step further, that it's people that ultimately 21
will have a significant role and significant impact on 22
government that will eventually result in solutions to 23
the problem, what ways do you see that presently either 24
inhibit the public or can increase the public's impact 25
on government to make solutions that are wise or perhaps 26

are more just or more reasonable?

1

DON HENNESSEY:

Well I am always going back to

2

education, but that's the way. Like I saw some of the

3

medical statistics on -- and where they started

4

education in Eastern Canada, and they just kick us in

5

the West all over because they started in school in

6

Grade 1. Environment is now a class just like reading,

7

writing, and arithmetic, global warming is this, and

8

this is that, and this is it, and that's what you do.

9

They grow up and that's part of their life.

10

JOHN SHIRES:

Anything that you see that can

11

have an impact on we people that are parents and

12

taxpayers that can perhaps have more immediate impact in

13

the short term versus the long term? What about access

14

to information, for example. Is there any comments with

15

regards to the government's sharing of information on

16

issues such as air quality? Is not enough information

17

being shared, too much?

18

DON HENNESSEY:

Well, for myself I am speaking,

19

not enough. I didn't even know this was happening until

20

just tonight. I didn't. You told me.

21

LARRY CUNNINGHAM:

What I was thinking is there is a

22

lot of information. This was advertised, we have our

23

libraries and there is a lot of information there, but

24

by educating our kids, they are going to come home and

25

be pushing it on their parents about pollution or

26

environment or whatever, because we can't really educate
the adults, they are not going to be wanting to. Their
kids will import some of it.

DON HENNESSEY: Like as an example, for myself,
before seatbelt legislation came in we made our kids put
their seatbelts on. Well God help you if you forgot to
put yours on, because they would be all over you, "don't
put that car in gear" or whatever. You just didn't move
the car until you had yours on too.

JIM ANDERSON: Our school systems have to be
doing something right, because some of the comments I
heard here this afternoon when those two classes were in
here, two or three girls standing here bickering amongst
themselves as to why not ride a bicycle instead of
driving a car, and some of things they said, some of the
statements were logical statements. I think the
education is starting. It probably didn't start early
enough.

JOHN SHIRES: So perhaps there is an
opportunity to have some degree of public impact on the
educational system that may allow for a quicker impact
or a more significant impact on curriculum changes that
would employ this?

JIM ANDERSON: Don's comment that in the East
environment is a school subject I think is a good one,
because we have to start teaching the young kids,

because we are too old to learn. 1

JOHN SHIRES: We are too old to change? 2

JIM ANDERSON: We have screwed it up, now we 3

have got to get somebody to fix it. 4

GUY HURTUBISE: Well I think it's very important 5

to start them right at that level or before, Grade 1 6

level or before, because that's where I think kids learn 7

the most is at that stage, and unless you started it at 8

that young an age you lose out on an awful lot, I think. 9

JOE KOSTLER: One of the things that comes to 10

mind, though, is that the young kids look to us parents, 11

whatever, as examples or role models, and if we are not 12

doing it, you can't say we are too old to learn, because 13

they are going to say "well gee, my mom and dad don't do 14

this", and it's going to take quite a while before they 15

can really have an impact. So we in this, in our 16

generation right now we still have to change, we still 17

have to make some changes if we are going to be sure 18

that our kids not only learn it, but live it. That's 19

important. 20

GUY HURTUBISE: Well I think that that, you are 21

going to get a certain amount of that, but I think the 22

greatest impact is still going to come from the younger 23

generation, but certainly we have to start doing 24

something now, there is no doubt about that, and I think 25

part of it is to make sure kids are educated. It's not 26

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always "do as I do, do as I tell you". There is always 1
a certain amount of that going around. 2

JIM ANDERSON: And as the kids bring it home, 3
the parents and the kids get together on it and it 4
begins to have an impact. 5

DON HENNESSEY: You start trying to stop a kid 6
that's right. It's pretty tough. 7

JOE KOSTLER: You can't argue logic, that's for 8
sure. 9

JOHN SHIRES: Can I ask one more question to 10
folks that are from Bonnyville and area tonight. What 11
else might Alberta Environment and Energy have done to 12
engender more interest and attention to this Clean Air 13
Strategy session? 14

GUY HURTUBISE: Here in Bonnyville? 15

JOHN SHIRES: Yes. Where did we miss the boat? 16
Why didn't we get more folks out? 17

GUY HURTUBISE: Well there is no question in my 18
mind that there should have been a lot brighter posters 19
that stand out, because it's been mentioned that it was 20
certainly advertised, I mentioned that you do an awful 21
lot of reading in a day and I guess you are sort of 22
glancing at things, and unless it sticks out you won't 23
see it, and I think it has to be more prominent, it has 24
to show up, no doubt about it. 25

JOHN SHIRES: Just don't rely on the local 26

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written and electronic media, in other words? 1

GUY HURTUBISE: I don't think so. 2

JOHN SHIRES: More posters, more banners in 3
town? 4

GUY HURTUBISE: Yes, because I think some of 5
these papers can't put it colourful enough for it to 6
stand out. If you could actually put a color photo in a 7
paper like that, and it was the only one, it would stand 8
out. 9

JOHN SHIRES: That's a good point. 10

SUSIE WASHINGTON: Maybe we should put posters in 11
the ALCB. 12

JOHN SHIRES: Or any of the bingos going on 13
tonight. 14

DON HENNESSEY: Even the schools. You know, when 15
the circus comes to town, I never know until the kids 16
come home with two free tickets. If one adult goes, 17
kids get in free. 18

SUSIE WASHINGTON: Schools are getting it, schools 19
got the information, but the point is providing flashier 20
advertising. 21

LARRY CUNNINGHAM: The ad was in the Bonnyville 22
paper, I seen it there at least twice, but it wasn't a 23
big striking ad, it was there, you read it. I checked 24
the paper tonight to find out the address and I couldn't 25
in the paper tonight, I had to phone the hotels to find 26

out where it was. 1

JOHN SHIRES: Thanks. 2

BRIAN DEHEER: From my experience, I looked in 3
the St. Paul Journal, and I couldn't find it. I only 4
knew about this meeting from seeing an ad in Maclean's 5
Magazine, and tried to find out what time and where it 6
was going to be, and I looked in the St. Paul Journal 7
and couldn't find it there. 8

JOHN SHIRES: Do you think there might be 9
interest in Bonnyville to come to other centres in 10
Alberta if we were to advertise along the lines you are 11
suggesting, in town, regarding those other centres, 12
Edmonton perhaps? If we were to, you know, put some 13
resources in that direction, do you think that might 14
help? 15

GUY HURTUBISE: I don't know what, your drawing 16
area, I don't know that you would get -- I think it's 17
basically a lost cause for this one. 18

JOHN SHIRES: Okay. 19

TOM WHARTON: In the rural areas, there tends 20
to be less of a concern with clean air, but more concern 21
in our water and some of these other things. Air, in 22
rural areas, is considered pretty healthy until we hear 23
different. So I don't think it's a big issue. As this 24
gentleman said, I think this crowd is indicative of the 25
interest. 26

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JOHN SHIRES: Okay. Thanks. 1

MODERATOR MILLARD: Any other comments? 2

 Well let me say thank you very 3

 much for coming out. The group was small, but I think 4

 that the discussion was good, lots of good ideas, and 5

 they will be helpful in developing plans for the future. 6

 If anyone wishes to make a 7

 written submission and amplify on what you have said, 8

 please feel free to do so. They should go to whom, 9

 Susie? 10

SUSIE WASHINGTON: Clean Air Strategy offices, and 11

 if you have picked up a folder you will find the address 12

 on the front section. It's also on all the fact sheets, 13

 if you picked up those. If you have it, I recommend you 14

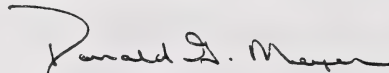
 do. 15

MODERATOR MILLARD: Thank you. 16

(Meeting ended at 8:30 p.m., Tuesday, November 6th, 1990) 17

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I, Donald G. Meyer, CSR(A), Court Reporter, hereby certify
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of my knowledge, skill, and ability.



Donald G. Meyer, CSR(A)
Court Reporter

CSR(A)

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CLEAN AIR STRATEGY FOR ALBERTA

Transcript of Proceedings

Regional Meeting

Held at Fort McMurray, Alberta, on
Thursday, November 8th, 1990

Appearances:

Vern Millard -

Moderator

Kate Hoos -
and Cheryl Bradley

Western Environmental and Social Trends

Don Meyer, CSR(A) -

Court Reporter

Transcript of Proceedings

(Meeting commenced at 7:10 p.m., Thursday, November 8th, 1990)

MODERATOR MILLARD: Good evening ladies and gentlemen. Let me say welcome to the evening. We are all glad that you could make it on a rather stormy evening, but thanks for coming out.

The purpose of the evening, of course, is to talk about the Clean Air Strategy. I have been convinced, against my better judgment, that I should make a few introductory remarks, and I have some overheads that I would like to review with you, and then we will turn directly into the presentations that have been scheduled for this evening.

After those have been presented, if we have time and I hope we will have time, we would like to have some general discussion and some dialogue in which we can have an opportunity to talk a little bit further about some of the main issues that have come up.

So without further ado, let me run through these rather dull overheads that actually Kate Hoos has prepared, and she has done a great job in preparing them, I am not sure if what's there is all that great, but anyway let's try it out and see how it works.

Let me say, first of all, that the purpose of the overheads is to try and give an

overview of what it seems to me the Clean Air Strategy 1
is all about. I think that there is increasing 2
recognition, on the part of scientists generally in the 3
world, that our planet is threatened by man-made 4
emissions. There is growing evidence or a consensus 5
that emissions must be reduced. The Clean Air Strategy 6
encourages public discussion and the Clean Air Strategy 7
will, first of all, identify most important issues, it 8
will hopefully develop practical approaches for reducing 9
emissions, and it will result in recommendations with 10
respect to policies and programs. 11

The Clean Air Strategy for 12
Alberta is a four-stage process. The first stage took 13
place in September of this year in a workshop, and the 14
workshop, made up of a wide variety of people, 15
identified key issues and options. 16

The second stage is represented 17
by this evening's meeting in Fort McMurray and it's 18
designed to give input and the views of the general 19
public with respect to these questions. 20

The third stage is a summary 21
workshop which will take place in the spring of next 22
year and will involve representatives from the various 23
stakeholders groups. 24

And then, finally, the fourth 25
stage is the final report from the committee. 26

Now looking at the general 1
question of air, Clean Air Strategy, we really need to 2
start with what are the major issues. As I mentioned 3
before, continuing research by scientists has 4
demonstrated that there are potential or real problems 5
for our planet, and one can identify three main kinds of 6
issues. There are other issues, but these are the three 7
major ones, at least in my opinion. 8

The first is the greenhouse 9
effect or global warming, and as I am sure you already 10
know, this is caused by carbon dioxide and other 11
emissions into the atmosphere. The gases trap energy 12
radiated from the earth and fossil fuels and water 13
vapour are major sources of greenhouse gases. The 14
emissions occur in both production and the use of fossil 15
fuels. This is an illustration that depicts the process 16
in the greenhouse gases. The normal process results in 17
certain greenhouse gases and in an equilibrium value, 18
but as we increase the loading on the atmosphere, we end 19
up with increased greenhouse gas levels, and as a 20
consequence, the heat radiates back to the earth. 21

Now the second issue that relates 22
to -- I think I am going to turn this off. If you can't 23
hear me, just wave your hand vigorously and I will see 24
it. If you just kind of move it, I won't see it, so you 25
have to do it vigorously. 26

The acid deposition is the second 1
kind of potential problem that exists. It's received a 2
lot of publicity, as I am sure you are aware over the 3
last few years, last decade or so. It's caused by 4
sulphur oxides and nitrogen oxides being emitted into 5
the atmosphere. The sulphur oxides occur almost 6
exclusively from processing fossil fuels, gas that 7
contains hydrogen sulphide, oil that contains or is 8
sour, and coal that has a sulphur content. Nitrogen 9
oxides occur from industrial and consumer operations, 10
and probably the best example is when we operate our own 11
motor vehicles. 12

The third major environmental 13
problem, from an air quality point of view, is smog. It 14
also has received a good deal of publicity over the last 15
few years. We have all heard about Los Angeles and 16
places in Eastern Canada. For those of us that live in 17
either Edmonton or Calgary, we see it from time to time 18
in terms of the yellow cloud that pervades the cities. 19
Nitrogen oxides are a major contributor to it, and the 20
note says it's not a problem in Alberta, but sometimes 21
it is in Calgary and Edmonton. 22

Now what is being done to address 23
these problems? Well, there have been a number of 24
national and international research studies and 25
agreements that have been reached; sulphur dioxide, an 26

agreement in 1985 resulted in a plan to reduce emissions 1
by I think it was 30 percent within a restrictive 2
period, and that agreement is coming up for 3
reconsideration, I believe, in the next couple of years; 4
nitrogen oxides have been part of an agreement or a plan 5
that was prompted by the U.N. in 1988; carbon dioxide is 6
currently under review and has been the subject of a 7
good deal of assessment, and you probably saw the 8
article in, at least it was in the Calgary Herald, I 9
suspect in other newspapers, about the Geneva conference 10
just recently with respect to a meeting of 700 11
scientists that were looking at the impact of global 12
warming, and of course there is all the research 13
activity that's going on in association with that. 14

Another question that is apropos 15
is how does Alberta fit into this total picture? 16
Alberta is a major producer of fossil fuels. In terms 17
of the Canadian scene, it produces 83 percent of the gas 18
that's produced in Canada, 80 percent of the oil, and 44 19
percent of the coal. Partly, and maybe primarily 20
because of that, Alberta's share of the emissions is 21
greater than what would be expected from our share of 22
the population. Our population is roughly 10 percent of 23
the total, whereas our share of sulphur dioxide 24
emissions is about 15 percent, nitrogen dioxide and 25
carbon dioxide about 22 and 23 percent, and those latter 26

numbers primarily from the energy industry plus the
other activities.

So on a per capita basis, Alberta
has the highest per capita emissions of certainly
nitrogen dioxide and carbon dioxide, but we also have to
remember that about 75 percent of the oil and gas that's
produced in Alberta is sold outside the province, either
to other parts of Canada or to the United States, and
therefore one can argue that, in part, the emissions
take place in Alberta on behalf of other consumers
elsewhere.

Canada's share of the total world
CO₂, carbon dioxide emissions, is 2 percent, so it's a
relatively small percentage of the world's total, which
of course has a direct relationship to the question of
greenhouse gases and global warming, and Alberta's share
of that 2 percent is something approximating a little
less than a quarter.

Another aspect of this whole
question that we have to be conscious of is that for
Alberta, fossil fuels are a major industry in the
province. The industry accounts for about 15, \$16
billion on a value of production basis in 1989. That
resulted in about \$2.4 billion going to the Alberta
treasury on a royalty basis or as a result of royalties,
which is about almost a quarter of the provincial

government's revenue. So from the economic point of 1
view, there are significant features involved. 2

Now looking at the question of 3
these air or these emission problems, and I will go back 4
and restate them; the greenhouse effect or global 5
warming, acid deposition, and smog, these are questions 6
that involve all of us. We always have a tendency I 7
think, in terms of environmental questions, to really 8
assess the blame on other people, but this is an area 9
where we are all involved. In terms of responsibility, 10
the facts suggest that carbon dioxide and nitrogen 11
dioxide are really distributed on a one-third basis for 12
the energy industry, is a major contributor; other 13
industrial operations; and the public, which really 14
means you and I as individual consumers in the province. 15
So we account, individually, for about one-third of 16
those emissions, or looking at it from a different point 17
of view, about one third of the problems that relate to 18
these three major issues, and so the solution rests in 19
our camp as well as in other camps. 20

An important question is what do 21
we mean by "clean air"? A kind of definition that has 22
been used over the last few years, I think, is that it's 23
recognition that air may contain contaminants, but the 24
level of them has to be less than what would cause 25
adverse effects upon human health, vegetation, and 26

materials. And that's been the basis, I think, for
standards that have been established, and regulations,
and so on.

But if you have regard for the
long-term effects of these emissions, thinking in terms
of greenhouse effects and the buildup of gases,
greenhouse gases in the atmosphere, obviously there is
something more than just the short-term question of
whether or not air today may cause health or vegetation
effects, and what we really have to put into the
equation is whether, on a long-term basis, the emissions
may cause serious problems for inhabitants of the globe.

If you make the assumption, and I
know that there are some that wouldn't accept this
assumption but for argument's sake let's accept the
assumption that Alberta has clean air, even if that is
true, that doesn't mean that we don't have to do
something for the future, because the scientific
research that's going on suggests that while Alberta may
have clean air emissions under this particular
definition, that the emissions are contributing to the
long-term buildup of greenhouse gases, etcetera, and
over the long pull they will have very serious effects
on all of us living on this planet. And of course it
doesn't mean we that are living today, it also means our
children and our grandchildren. So it has moved from

being a current problem to a long-term problem and 1
consequently, if we are going to avoid those long-term 2
problems, I think the evidence is there that we need to 3
reduce emissions. 4

Now the question is how can we go 5
about reducing emissions, and there are four basic 6
alternatives on a very broad basis. The first, of 7
course, is to produce less energy. If we shut down our 8
oil, conventional oil industry or our gas industry or 9
our oil sands, I guess that's more pertinent to Fort 10
McMurray, or any one of those, would certainly reduce 11
emissions. 12

We can individually use less 13
energy. We can all drive less, we can heat our homes to 14
a lower degree, and we can all do it by those means. 15

We can use energy more 16
efficiently, both in industry and on a domestic or 17
residential basis, individual basis. 18

And we can shift to non-polluting 19
energy resources such as wind or solar, etcetera. 20

But how can we, as individuals, 21
reduce emissions? Well first of all, of course, that's 22
the whole reason why we have these regional meetings. 23
We want your suggestions, we want to see what you think 24
about this problem. If we stand back and think about 25
it, we would probably all agree that education is 26

probably a major factor in terms of tackling the 1
problem, and then one runs into the question of how do 2
we achieve education to obtain the results that we want, 3
and I guess a general kind of question that I would 4
throw out for consideration is how do we become 5
convinced, as individuals, that we must change our 6
lifestyles, because the impacts seem so remote to us. 7

We were in Bonnyville on Tuesday 8
and the people there were saying "well, you know, we 9
have clean air, and maybe you people in Calgary and 10
Edmonton don't have, but we are okay", and you people in 11
Fort McMurray might not feel quite the same way, but 12
it's this relative problem that's before us. 13

Finally, we need to think about 14
what policies and programs are required for an effective 15
Clean Air Strategy. Well again, first of all, your 16
suggestions will be very helpful, and what we have done 17
in terms of this overhead is simply identify a few that 18
might be considered. Now I know there are several 19
people making submissions tonight, and I am sure they 20
will contain some suggestions as to how this can be 21
done. Just for the purposes of promoting discussion, we 22
have listed a few, such as new standards; limiting total 23
emissions in a particular area, an airshed area for 24
example, putting a cap on the amount that might be 25
produced for that total area; one might develop or 26

establish incentives, financial incentives, to develop
new technology; one might change the current financial
incentives, which today tend to perhaps encourage the
use of energy, to financial incentives that would
discourage the use of energy; and, of course, we can
expand research.

Well these, ladies and gentlemen,
are just a few suggestions to foster our thinking.
There is nothing sacrosanct about those particular
ideas, and what I would like to do at this time is to
call upon those that have indicated a desire to make a
submission and to hear from them what they would
propose, and then if we have time at the end of the
session we will have some discussion, and as I say I
hope we will have some time so that we can have an
exchange of views between all of us and explore some of
these broad issues.

The rules of the game are that
the submissions would not be more than I think it's 15
minutes, isn't it Cheryl?

CHERYL BRADLEY: Right, that's right.

MODERATOR MILLARD: So we would ask you to stay
within that kind of restriction, and of course the
purpose is to get your views out in the open for
discussion and then to have enough time left over this
evening to be able to engage in a general dialogue.

Thank you, Kate.

Now if I could call upon the
first person, Pat McInnes?

PATRICIA McINNES: I sat down with pen and paper for
almost four days trying to start this presentation, and
basically I can see why the government asked for our
input, because we seem to have gotten ourselves into a
heck of an awful mess.

I kind of disagree with everybody
about the quality of our air, I don't think it's really
that great, and in emissions we seem to kind of have
climbed a little bit there on our nation's scale. The
quality of our air is affecting our trees, our lakes,
and most of all the air that we breathe, and it's now
time that we take affirmative action and kind of get rid
of the verbal pollution. Many of the problems in our
province that I would like to address I don't really
fully understand and know, but I do know about some that
occur here in Fort McMurray.

The first one I would like to
address is effective air quality monitoring.
Unfortunately, right now, no one in this room can tell
us what our total hydrocarbons have been for the last 18
months, because that particular part of our monitor has
been down for a total of 169 days in 18 months. That's
almost ten days per month that we have had no readings.

During March of 1989 we had total 1
hydrocarbons that peaked at 16 and went for three days, 2
a total of 62 hours, at 10 ppm's or more. Now we don't 3
have a standard for that here in Alberta. It is rather 4
high. They contain things that are not, definitely, 5
good for us, and unfortunately even after an article in 6
the Today newspaper, nobody seemed to be able to explain 7
to us why those readings occurred, what happened, 8
whether it was emission from a vehicle parked close to 9
the monitor, whether it was a malfunction -- it 10
definitely was not a malfunction, we checked that part 11
out, we called five times before we got an affirmative 12
answer on that, that the technician had checked out the 13
monitor and it was working -- and I think things like 14
that need to be addressed. In the last three months, 15
although it has just recently been fixed, we have had no 16
nitrogen readings, none whatsoever. That part of our 17
machinery just shut down totally. 18

That in itself is not too bad, 19
except for the fact that we have really had some kind of 20
high levels in ozone readings; not the good ozone, 21
that's the stuff that's up in the sky, the stuff that's 22
down here, down where it affects us in the way we 23
breathe. 24

Now in 1989 we had one month 25
where our reading in 24 hours was over the standard 100 26

percent. On two of those days, the readings were two
times the acceptable minimum -- maximum, sorry, we wish
it was the minimum. Okay. In 1990 we had two months
that were over the 24-hour standard 100 percent of the
time, one month at 90 percent, but what looks even worse
is that this time we had 22 days that were two times the
allowable maximum for ozone, and we also had 14 hours
that were exceeding the hourly standard.

Now ground-level ozone is one of
those things that can affect your health, can age your
lungs, can cause stress in trees, and stress in me too.
I think, actually, that's one thing that maybe has to be
looked at, is that the monitoring has to be done. If
the monitoring is not done effectively, we have
absolutely no way of studying the trends of the air in
this area, we have no idea of how to correct it or how
to help it.

Some of the other ones that we
had really good down times in were 95 days in hydrogen
sulphides, kind of works out to about five days a month;
then we had 126 days in coefficient of haze, and only 21
days in sulphur dioxide, so we were doing pretty good on
that one.

Now one reason I would like to
actually stress more on the monitoring is that our
monitor hasn't even really been picking up the readings

that well. If we take and talk to a few trappers and 1
you take a look down the Clearwater, and I have lived in 2
the same apartment block for six years now and I can get 3
up in the morning and I can look across the Clearwater 4
and the air or the fog, as it rolls in, has been white, 5
for the last two years that air has been blue. Trappers 6
coming in off the Clearwater River into the city hit a 7
wall of blue. Some of these people work out at the 8
plants and they know that it's not just nice blue air, 9
somebody painted it, it definitely has an odour. It's 10
not taking that little turn down the Athabasca River, it 11
doesn't want to go that way, it goes down the Clearwater 12
and then it disperses out into town. 13

Now this problem has been 14
addressed by Environment Alberta and they are moving 15
their monitor, but it's only because of one thing, and 16
that's a few people who call in and complain when the 17
air is bad, and they know which areas are coming in. 18

That's one part, too, that -- I 19
hate to jump around like this but we just get so riled 20
up sometimes. 21

I took a look in the phone book 22
last night just simply because I could never find the 23
number for Environment Alberta in the phone book, that 24
1-800 pollution hotline that everybody says they can 25
phone in on. It's never there. Now I was advised last 26

night by Jerry Lack that it's in the front page of the
emergency numbers in the phone book. Now I can see the
report of poacher, that's fairly understandable; the
kid's help phone, that was a good one; forest fires, I
can understand that. It comes under environmental
emergency.

Now in Fort McMurray, most people
don't consider an excessive amount of odours in our air
an environmental emergency. They consider that a toxic
spill on the highway, a major gas eruption that's
ignited, but they really don't consider that a hotline
that they can phone in and say "our odours are really
bad in town, they are affecting the way we breathe, they
are causing disturbances, they are not making me feel
good, they are making me vomit and they are making me
throw up." There is no way you can do that, because
people don't understand that. I think we need better
advertisement of that number.

Now sometimes industry has a
feeling that we are kind of chasing them down, and quite
honestly, we are not. They quite often don't understand
that sometimes we are the biggest help they have got,
because without people who can smell those odours and
detect them, they have no way of knowing how they are
affecting people in town, how they are affecting the
plumes because they don't disperse the way they think

they are supposed to. We are not out on a witch hunt to 1
get them, we are out actually to help them, they just 2
haven't realized it yet, and we hope that that's one 3
thing that, through better publication and better 4
information to the public, will happen. 5

The other reason, and the other 6
thing that I would like to stress, is that we definitely 7
need more affirmative and aggressive action. Our laws 8
now are far too discretionary, and they really leave it 9
up to the Minister on whether anyone will be fined or 10
will not be fined. 11

The Federal Government was asked, 12
last year, if they were contemplating a list like the 13
United States of the nation's air polluters, and the 14
answer was no, because the companies wouldn't appreciate 15
that. This type of attitude has helped create the 16
problem we have now got. 17

Success stories of stronger 18
actions have resulted in less emissions at Inco and 19
cleaner air in Los Angeles, just to name two. Now Inco 20
still operates quite successfully, and industries still 21
flourish in L.A., so why are we afraid? I really fail 22
to understand that point. 23

On October 3rd -- this is one 24
other thing I would like to address is health 25
problems -- now on October 3rd the inner City of Calgary 26

released alarming statistics on the number of asthma 1
patients in Alberta which are particularly being 2
attributed -- partially being attributed, I am sorry, to 3
the increase in air pollution, which is one of the 4
things that does trigger asthma. 5

Dr. David Bates of the University 6
of British Columbia has completed studies of SO₂ and O₃ 7
to respiratory problems. Although the energy industry 8
doesn't like to be the villain in health-related 9
problems, the possibility is there, and high incidents 10
reports of hospitalization due to respiratory problems 11
and high pollution emissions sometimes seem to go hand 12
in hand. More people in the Fort McMurray and Fort 13
MacKay area are experiencing respiratory illnesses, 14
which usually has seemed to occur in times when we have 15
had high emissions, and one thing that's really 16
frightening is that there are more children developing 17
asthma problems. 18

I know that some of you are going 19
to sit there and say "God what an alarmist". You know 20
what? I, like everybody else around here, really likes 21
to say "I told you so", but you know what; in this case, 22
I sincerely hope like hell I am not. Thank you. 23

MODERATOR MILLARD: Thanks. Jim Rogers? 24

JIM ROGERS: I have a picture for you to look 25
at. I have a photograph. I will just hand it around 26

and then you can take a look.

The thing that's interesting
about the photograph on the magazine is it's just
indicative of a process that's subtly happening. If you
look at the photograph, it's a very nice picture of a
coyote standing under a tree. If you look a little bit
closer at the tree, you realize that the tree is
actually dying and in some fairly advanced state of
decline, but the majority of people will walk by a whole
forest that's in some kind of distress and maybe not
recognize it because they don't know what to look for,
or they are not acute to looking at even the trees in a
sophisticated way.

I am here as a representative of
the Trappers' Association. We have some 10,000 or 7,000
members across the province who are out under the trees
and around in the environment throughout. We are a
stakeholder group because we regard ourselves as a part
of the ecosystem and in a relationship where we are not
only dependent on the welfare of the animals, but we
have taken up an occupation like that because we wanted
to be involved with the animals and within the
environment, and there is some substantial amount of a
sacrifice in standard of living and in some other
options that people have undertaken upon, at their own
desire, in order to live in the bush and amongst the

animals.

What we are seeing is a very wide-spread stress throughout the environment, and a lot of problems with particularly the trees, but different animal species. Amongst the animal species it's quite difficult to detect, because they are all inclined to have a natural cycle of decline, almost one for one. If people don't catch the animals, the animals overpopulate, and within two years they get sick and die. We see this routinely throughout the environment, and you get to kind of be able to judge. When it looks like there is a lot of animals and it looks like they are really prospering, the trapper immediately gets worried, because if you don't cut down that population they are going to come to a very nasty end, and the very nasty end is usually starvation over a period of four or six months in the wintertime.

What we have seen, then, is some strange things happening. As you start to stress the environment with a number of artificial and man-made influences, then you allow the animals to go overpopulate, they make another additional stress.

We are doing things to our planet that nobody would want to do to any kind of an experiment that they and their family were going to be living in and we know that, from what we have been able

to do with modern medicine and what we have been able to 1
do with modern transportation and some limited 2
mitigation within our antagonistic, legalistic kind of a 3
process has allowed us to expand our population probably 4
four or seven or ten times more than what our planet 5
would sustain if we didn't have this technical 6
communication kind of skill. So we are moving into a 7
position where we are really injuring the entire global 8
system. Now, this year, last year, these impacts are 9
progressing in a way that we don't understand even 10
what's being taken out of the ecosystems or what the 11
effect is. 12

For somebody to come along and 13
say we have got ten years, that is absolute lunacy. We 14
don't even have one year last year. We have got to 15
start making some real basic changes to our system and 16
our society and the way that we are seeing ourselves and 17
what we are doing on this planet starting off as quickly 18
as we can. There is no use waiting until the system 19
fails and then try and come up with a plan or an 20
emergency response. If we possibly can, we have to try 21
and anticipate where the system might fail, what kinds 22
of steps can we do or take to reduce the impacts, and 23
how would we stage those reduction things through our 24
system. Maybe, for example, saying if it looked like 25
the atmosphere was, in fact, self-propelling itself into 26

degradation, how many things could we remove that would 1
be optional impacts? The obvious aim is that I want to 2
sustain my own life, the life of my family happily, and 3
some kind of a community of friends that I relate to. 4
Beyond that, I am ready to negotiate everything. And 5
that's just speaking for me. Us trappers are a fairly 6
compromised group, we have chosen to go and live off in 7
the bush in a little cabin just to be near the 8
squirrels. You can figure that out yourself. 9

I just mention a couple of things 10
that have gone extremely wrong. We have been accepting 11
what science and industry have been telling us, and we 12
were told that acid and acid in the air would be 13
neutralized, that acid rain wasn't a problem. 14

Then we discovered that, 15
actually, there is a factor about -- that is 16
substantially bigger than rain, that's acid air, that's 17
SO₂. It's a gaseous substance and it's inclined to 18
dryly adhere to vegetation, and it washes out, but it 19
washes out with rain or precipitation into the ground 20
around trees, particularly trees in a row across a 21
field. Here's an all-new impact that we never even knew 22
about until six months ago. Maybe industry knew about 23
it but they weren't saying, maybe government knew about 24
it but they didn't want to panic the public by letting 25
them know. 26

So then we were told that if this 1
acid goes down into the subsoil it will meet with a 2
carbonate kind of subsoil and that will neutralize it 3
and everything will be all right, and now we have 4
discovered that that actually goes down there, creates 5
CO₂, and produces a whole spectrum of elements, most of 6
which are toxic to plants and the little biota that live 7
in the soil and break down things to make them so that 8
they can be utilized as nutrient by other life forms. 9

We were told that the pulp and 10
paper industry just put their sludge in a big pond, hot, 11
stirred it around, and then the amount of dioxin that 12
came out miraculously reduced by ten times. We now 13
discover that PCB or dioxin is, in fact, a volatile 14
compound at those kind of temperatures, the stuff has 15
been going into the air, and our whole ecosystem is 16
saturated with it, including all the food on the store 17
shelves. 18

We have had another sort of a 19
little setback. Pat brought to our attention these 20
problems with monitoring, and that sounds sort of, she 21
says it would be generous. That was pretty good. Well 22
the fact is industry pretty well knows when they are on 23
spec and when they are off spec, and maybe the equipment 24
fails just when they are going off spec, but one way or 25
another we have had a very elaborate study done on acid 26

rain deposition in the province, and it suffered two
terrible sort of procedural problems. One, it relied on
data generated by industry to tell us how much acid
there is out there, and the other one, industrial people
were largely involved in designing the studies that were
put together and were carried out.

So the scientists, having carried
out this 5 or \$7 million process, stood up and to a man
said "well I did the best I could given the
circumstances and given the terms of reference of my
part of this study", an extremely sad situation for the
public, and particularly distressing when you realize
that time is not money. We are not fighting for time to
try and waste it, we are fighting for time to try and
get it back.

I wanted to offer a few insights
or advices to our government and the like. Heaven knows
trappers are not scientists, and so therefore they don't
live on the tenth storey of a brick building and not
know a damn thing about the environment so who would
care what we said, but it would appear that there are a
bunch of other governments that are in the same
condition or situation as Alberta. Generally they are
regarded as OPEC, but there are others that are heavy
producers and they should be concerned about aspects of
global environment quality and air quality, and we

should be making a subset communication with those 1
people to try and come up with research or information 2
that can be shared and thereby get more results for our 3
buck, so to speak. 4

I would recommend that the public 5
is really willing to help in whatever way they can. We 6
have seen, you know, the acceptance of the blue box kind 7
of an initiative when, pitifully enough, you have got 8
people whose children are dying of cancer, whose cancer 9
is sweeping through our society. There is some 10
possibility that we could face, say, a flu like 1918 in 11
the spring of next year, or a subsequent year, and these 12
people are being led along the path that, well, we have 13
got ten years, don't really worry about it too much, 14
industry is concerned, and the like. 15

The fact is that most of 16
industry's uses of our environment are much more 17
highly-tolerant to pollution than are human beings, and 18
across our society we can draw a line, sort of the 10 19
percent that would be most susceptible and move up by an 20
increment. Some of those people are probably already 21
gone, as are some others within our society. 22

I have a problem with we have 23
guaranteed a freedom of the press but we haven't 24
obligated the press to freely treat the world and 25
accurately present what we are seeing out there, so we 26

are being led to believe that it's the editor's 1
prerogative to smear one candidate in an election and 2
boost another one and that's freedom of the press. 3
Well, in fact, we have got an electorate out there that 4
that press has an obligation to, and it's not a matter 5
of the discretion of the editor as to whether they want 6
to disturb the public by offering them information or 7
not. 8

Research into subterranean 9
dwellings or subterranean utilization for factories or 10
other things like that, we have, I think, got to start 11
backing off the surface of the planet a little bit. Our 12
heating costs are very high here on the surface, and the 13
amount of carbon dioxide that's converted to oxygen by 14
an asphalt road or a building or a parking lot is quite 15
minimal. I gather that I am kind of running out of time 16
here, so I will sort of speed along. 17

There comes a point where we may 18
have the money to buy a bigger and bigger house and to 19
heat it and to carry on all kinds of elaborate 20
prerogatives, but at the same time, or in short order, 21
we should be looking at that smaller house somewhat like 22
the smaller car, and having a price tag or an emission 23
tag on us as individuals. 24

It's fine for industry to say "we 25
produce a massive amount of pollution and we are doing 26

that, really, on behalf of the public", but then you are 1
looking out there at individuals in the public that we 2
are going to tag that emission onto and say here's this 3
single S.O.B. who has got a 30,000-square-foot house, 4
flies his private jet plane, likes to, you know, blow 5
off CFC's for recreation or whatever, well that's all 6
his prerogative but he drives a small car with a 7
catalytic converter because we have got laws that focus 8
on that particular piece of human behavior. I would 9
suggest that it would be a very good idea that, if there 10
isn't going to become some kind of a tagging like that 11
on the full carbon utilization of the individual, at 12
least something like that should be kicked around, and 13
people like the Petroleum Association should recognize 14
that a carbon tax could be, you know, in the wind 15
somewhere, sometime. 16

On the matter of CFC's and 17
halons, we have a major problem. It's apparently a 18
discretionary use if an industrial or military user 19
wants to install a system that will deliver thousands of 20
pounds of halon upon a false alarm in a fire system, and 21
that's seen to be particularly annoying, and I don't 22
know what the alternatives are, but they should be 23
examined and there should be some. If the only thing we 24
can do is a negative incentive, make it negative. 25

The concern is that if the 26

population is aware of an examination of themselves as a
polluter, emission source in the world, that they will
then start looking at their impact and trying to limit
their impact on a per-person basis, and heaven knows we
have got a big problem coming up when a lot of the
people on the planet discover that they are going to
inherit our filth and their impact is almost nil.

I would recommend that somebody
give some thought to those possible things that could go
wrong or be discovered to go wrong. I will give you an
example. There has been a, somebody has done a gross
carbon examination and discovered that there is about,
oh, one-third of the carbon dioxide going into the
atmosphere has somewhere gone out of the atmosphere and
they are not able to account for it -- I believe I have
that in my pocket -- a kind of a marvelous, billions of
tons of pollution just vanishes, and that's from
September the 20th, page B6 in the Journal.

And this is the kind of thing
that really is quite disturbing because it demonstrates,
again, that we don't know what's happening out there.
We don't know if there is a finite absorption there that
is being saturated, that suddenly things may change
quite radically without our being aware of the fact that
there was a change happen.

MODERATOR MILLARD:

Jim, I think your time is running

late.

JIM ROGERS: You certainly have. Thank you.

I will save them for the next round.

MODERATOR MILLARD: Don Klym?

DON KLYM: I am not sure but that there is a pattern developing. I am following the mad trapper. He was in front of me at the legislative review, but enough about that.

I am Don Klym, I am the Manager of Environmental Control at Suncor. I have been a resident of Fort McMurray for some 20 years and employed at Suncor for approximately 17 years, and most of that has been in the area of land reclamation.

Suncor is a national integrated petroleum company. Its Oil Sands Group has operated in the Athabasca region for more than a quarter of a century.

The Oil Sands Group mines, extracts, upgrades oil sands to produce synthetic crude oils at its lease in north-eastern Alberta.

During the time Suncor has operated in this area, we have made it a priority to be a good corporate citizen. We have a stake in the development of the Athabasca Oil Sands and at the same time we are committed to environmental protection.

Suncor believes we can provide a

valuable contribution to this Clean Air Strategy because
of the experience that we have accumulated as a pioneer
in the oil sands industry. We are also concerned, as a
business enterprise, of the wide-reaching ramifications
of future legislative initiatives with respect to
atmospheric emissions.

A Clean Air Strategy is a
significant step in the evolution of environmental
legislation in Alberta. Suncor has already participated
in some key legislative initiatives. We, therefore, see
today's meeting as a continuum of basic premises and
positions that we have already put forward.

In '87 and '88, our input to the
Environmental Enforcement Review Panel was that some
minor adjustments to the enforcement system had to be
made, but fundamental to any legislation was that (i)
the environment must be protected, (ii) the rules must
be enforceable, that is for the regulator, the
inspector, and they must be workable for the operator,
people like us, and (iii) the public must be informed.

At that time we took issue with
the existing air quality standards and their
applicability, mostly their applicability. We maintain
that the standards should be more realistic and
achievable without creating any undue hardship on
industry. Furthermore, we stated that if standards are

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to be used for establishing source emission limits, then 1
they must be applied equitably. 2

Recently, in October, last month, 3
we presented our views on the proposed Alberta 4
Environmental Protection and Enhancement Act at a public 5
meeting similar to today's. In our assessment, we 6
stated that the legislation has the substance to protect 7
and enhance the environment, but that its enforceability 8
has yet to be tested and the doors were wide open to the 9
public. 10

At that time we expressed our 11
concern with the nature and the extent of public 12
involvement. 13

We stated that public involvement 14
is consistent with Suncor's approach as stakeholders in 15
the region. We share, with the public, a common 16
objective of having a protected environment because we 17
are part of that public. 18

However, corporately speaking, we 19
must balance that objective against our viability as a 20
business, and the public has to balance that objective 21
against its desire for resource development, energy 22
security, and employment, which of course affects their 23
quality of life. 24

We suggested that shared 25
responsibility of environmental resource management also 26

means sharing financial burdens.

1

So the preceding views and concerns can also apply to the Clean Air Strategy as we perceive it today. So we, therefore, would like to provide some strategic considerations to this public forum which we believe could advance the formulation and the implementation of the strategy. So let's look at some strategic considerations.

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In development of any strategy, be it a corporate strategy, a Clean Air Strategy, or whatever, one must take advantage of the opportunities, you have to identify the opportunities and take advantage of them, and manage the threats. You will always have threats around. One must also build on the strength whilst not forgetting the weaknesses.

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In Alberta, the most obvious and greatest opportunity is the state of our air quality. We have an extensive data base of emission inventories and research on environmental effects, and we have already heard about the A.D.R.P., the Acid Deposition Research Program, and locally the Air Quality Task Force report, which was completed some three years ago for this region, are two programs that come to mind. Therefore, we believe that air quality in Alberta can be generally regarded as good. I guess it's open to debate. I said "generally". We have a few hot spots.

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Probably the largest threat is 1
the uncertainty of sustained economic development given 2
the depleting non-renewable resources and higher 3
environmental standards, that is probably the largest 4
threat in the Province of Alberta, and then you compound 5
that threat with the fact that Alberta emissions, in the 6
global sense, must be addressed as well. We have heard 7
about the longer-term problems vis-a-vis CO/2 emissions 8
into the atmosphere, global warming. 9

So as we indicated in our 10
submission to the Enforcement Review Panel in 1987, we 11
believe that the current legislation, with the proposed 12
overhaul, will probably be the greatest strength as far 13
as the system is concerned. However, the enforceability 14
of it and the implementation could be the greatest 15
weakness, and we will allude to that later on. 16

Therefore, it is refreshing to 17
see that the Clean Air Strategy deals with all 18
pollutants, the way we understand it it deals with all 19
pollutants from all sources in the Province of Alberta, 20
at a time when it is not too late, and Jim may disagree 21
with that, at a time when it is not too late to act for 22
clean air issues in terms of direction, policy, and 23
enforce control strategy. 24

Therefore, we would like to state 25
Suncor's position on what we believe are the key 26

strategic planning principles.

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Number 1 is priority setting. It

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is only human nature to be concerned about personal

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well-being first and foremost, and we heard about health

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effects. Health and quality of life issues must be

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addressed relative to ambient air quality, that's number

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1. In the Fort McMurray area, this can be exemplified

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by the proliferation of odour complaints in recent

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years. People are demanding to know what the health

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effects of industrial odours are moreso than demanding

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what CO/2 emissions contribute to global warming.

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Number 2, environmental

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resources. Our environmental resources that we

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personally utilize in this area are of personal concern,

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so therefore regional-scale air quality and air emission

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must be addressed.

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And thirdly, albeit selfishness

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may be implicit in the preceding priorities, we still

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must be aware of the impact of our activities on other

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regions and, of course, further abroad, so that will be

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the third priority.

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The second strategic

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consideration would be we must have a logical process

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taking place. To establish an appropriate clean air

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control strategy, a defined sequence of events must

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occur:

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Number 1, the inventory of atmospheric emissions, 1
that's the quantification and characterization of those 2
emissions, must take place; 3

Secondly, the understanding of atmospheric 4
processes which transport these pollutants and transform 5
them and deposit them has to be conducted, it has to be 6
understood; 7

Then, of course, the assessment of environmental 8
and health impacts; 9

Fourthly, from that we establish environmental 10
standards; 11

And lastly, the development and implementation of 12
the control strategies based on the standards. 13

We would like to make some 14
comments on the standard-setting. Standards should be 15
realistic, that is they should be based on technical 16
validity, not emotional anxiety. Standards should be 17
equitably applied on an airshed-to-airshed basis, not 18
across the board in the province. Standards must be 19
enforceable. This means there has to be some relation 20
to source so that we can properly licence sources. This 21
is, today, a recognized deficiency, and hopefully the 22
proposed environmental legislation will be addressing 23
this. It's been identified as a deficiency. 24

Another consideration, good 25
science and education, and there is a reason why I put 26

those two together; they are interdependent. Still 1
fresh in our minds is the Medical Diagnostic Study of 2
the A.D.R.P., the Acid Deposition Research Program, that 3
was completed a couple of years ago, and the diagnostic 4
study took place, of course, in Southern Alberta in 5
Pincher Creek. This was a world-class study and it's a 6
study, its results were not accepted by the public even 7
though the results were positive, or at least there was 8
no correlation in terms of health effects in that area 9
to other reference groups. It was not accepted. 10

Good science is a prerequisite to 11
legislative requirements, but unless the public 12
understands the technicalities of an environmental 13
problem, the scientific effort may go unrecognized. 14
Translating technical study findings into layman 15
language is only one facet of the educational process. 16
The entire process must be addressed, beginning in the 17
school classroom. The development and instalment of an 18
environmental package jointly with industry into the 19
school curriculum in this area, the Fort McMurray 20
schools, is a positive example of this. 21

Our reference to science also 22
covers the spectrum of source inventorying to 23
environmental impact assessment to pollution control 24
technology. We recommend that government industry 25
authorities be established to develop inventory and 26

impact assessment strategies and the appropriate quality 1
assurance systems. We heard about monitoring problems 2
earlier. The initiative by the Canadian Petroleum 3
Association to review inventory methodology is an 4
excellent starting point. 5

Next consideration, the 6
regulatory process. How is all this going to be 7
converted into regulation? It has already been 8
recognized, and adopted to some extent as policy, that 9
global atmospheric issues can only be solved in concert 10
with the global community, and we all know about that. 11
We stress the importance or the significance of this in 12
terms of business viability for enterprises such as 13
Suncor, and of course competitiveness in the market. 14
Therefore, we strongly recommend that an 15
intergovernmental and international infrastructure be 16
established to deal with the likes of global warming and 17
ozone problems, and from the perspective of the Clean 18
Air Strategy, we believe that these infrastructures are 19
being enhanced, and we fully support these. 20

Locally and regionally, air 21
quality issues can be dealt with through committee 22
infrastructures where all stakeholders meet, discuss, 23
and act on their concerns. 24

North-eastern Alberta is on the 25
leading edge of stakeholder participation in managing 26

air quality issues, and I have to refer to the Regional 1
Air Quality Co-ordinating Committee, which has been in 2
operation for a number of years now with some 3
significant successes. 4

Requirements for atmospheric 5
emission reduction global-to-local scale must eventually 6
translate into regulations. The proposed Alberta 7
Environmental Enforcement Enhancement Act, we believe, 8
makes provisions for this. It will have to take time to 9
happen. 10

The last and probably most 11
critical consideration in the strategy development is 12
implementation. The implementation of the Clean Air 13
Strategy, and eventual emission reduction, will have 14
significant economic impact on industry and all of 15
society, and this is a given and we all know this, this 16
process will be publicly driven. No debate on that. 17

In our introduction we alluded to 18
our endorsement of public becoming involved in the 19
management of environmental resources because this has 20
become a way of doing business, but we also said that 21
shared responsibility means sharing in the cost for 22
future environmental controls. We believe a partnership 23
already exists because the oil sands industry has, to 24
date, provided its greatest returns to the public in 25
terms of tax revenue of various kinds, wages, and 26

benefits, and so forth. Shareholder returns are 1
relatively insignificant by comparison. 2

Government-industry cost sharing 3
in research and development programs for pollution 4
control technology is not a new concept. A current 5
example is an SO₂ reduction pilot test taking place at 6
Suncor which is a co-operative effort among the Federal 7
Government, Alberta Government's AOSTRA program, Union 8
Carbide, and our company, Suncor. 9

However, control technology is 10
much more expensive than research programs or emission 11
inventorying. Costs will be variable dependent on the 12
ultimate international and national and provincial 13
accords, as well as local air quality standards. 14
Retrofitting or new ventures would be subject to 15
different costing scenarios. Economic viability, not 16
just with the industry but for consumers, will be a 17
threat. 18

Therefore, Clean Air Strategy and 19
all resultant legislation must consider this 20
far-reaching ramification. Suncor's position is that 21
economic instruments -- and that seems to be becoming a 22
buzzword -- economic instruments must be available so as 23
not to threaten our business viability, and most 24
importantly, the quality of life for Albertans. 25

Another initiative by the C.P.A., 26

the Canadian Petroleum Association, which is not 1
xxxpeculiar to our industry which is also being 2
considered in the United States, is the review, they 3
conducted a review of the feasibility of using economic 4
instruments. Specifically, the concept of trading clean 5
air permits is not that far-fetched, where economic 6
viability is maintained for all the operators in a 7
defined airshed. You do this by negotiating the most 8
cost-effective reduction plan for individual operators, 9
but yet achieving the airshed reduction standard or 10
target. 11

Here in Fort McMurray, an 12
opportunity currently exists for the oil sands industry. 13
It has been indicated by the Alberta Environment that, 14
based on the proposed interim loading targets for 15
sulphur dioxide, our airshed here cannot accommodate all 16
the emission sources. We haven't seen the target yet, 17
but this is what we hear. Syncrude and Suncor are 18
current operators with SO₂ emissions in the area. OSLO 19
is on the verge of plant design and construction and 20
decision. The next step in this process would be to 21
define a socially-responsible level and a schedule of 22
SO₂ reduction for this airshed and then to negotiate, 23
with all the stakeholders, the best economic instrument 24
for achieving this reduction. 25

In summary -- I hope I have 26

time -- in summary, Suncor views the Clean Air Strategy
as a positive direction and approach for the benefit of
all Albertans. We fully support it and we want to be
part of it.

We have re-examined some of our
concerns with evolving environmental legislation in
Alberta relative to Suncor Oil Sands Group. Public
involvement and enforceability of clean air standards
were two primary issues. We suggested that all
Albertans must have shared responsibility and financial
implications of increased environmental control.

We voiced some strategic
considerations such as priority setting, using a logical
sequence, complimenting good science with education, how
the strategy should culminate in regulation, and
financial implications of implementing the emission
control.

So in our final summation to this
public forum, we would like to stress that the area of
clean air regulation has the greatest repercussion on
industry and operations such as Suncor, relative to
other environmental legislation, and we -- I am
referring to water pollution control, waste management,
and the likes of the other things, land reclamation. It
not only can jeopardize industry viability but with it,
the interests of the public at large. We therefore draw

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attention to the need for cost-sharing mechanisms to 1
manage all our stakeholders' expectations through the 2
1990's and into the next century. 3

Suncor would like to continue to 4
participate in the evolution of environmental 5
legislation and sustained economic development in 6
Alberta. We appreciate today's opportunity to input to 7
a most important and exciting initiative as the Clean 8
Air Strategy. 9

I would like to make one more 10
comment to that, that it wasn't our Public Affairs 11
Department that prepared this for me, these are my own 12
ideas endorsed by Suncor management, so I would like to 13
put a qualifier on that in case some of you were 14
wondering. Thank you. 15

MODERATOR MILLARD: Thank you. Chief Dorothy 16
McDonald? Bruce Friesen of Syncrude? 17

BRUCE FRIESEN: I am not sure if I can follow Don 18
Klym's philosophical presentation. My name is Bruce 19
Friesen, I am the Manager of Environment Division at 20
Syncrude, and my comments this evening are on behalf of 21
Syncrude. 22

I want to express, on behalf of 23
Syncrude, our appreciation, Mr. Millard, for bringing 24
this process to our region, and the opportunity for us 25
to make our comments in a public forum. 26

We believe the Province of 1
Alberta will gain substantial benefits from a 2
carefully-conceived and developed Clean Air Strategy. 3
Such a strategy will provide a strong foundation for 4
both provincial regulatory practices, and also national 5
and international air quality discussions. Alberta 6
Energy and Alberta Environment are to be commended for 7
the initiative they have taken. 8

Syncrude is pleased to have the 9
opportunity to contribute to the development of this 10
strategy. 11

Just a couple of quick comments 12
describing Syncrude. Syncrude currently produces 13
sufficient synthetic crude oil to satisfy more than 13 14
percent of Canadian requirements for petroleum products. 15
This builds on your comments, Mr. Millard, about the 16
magnitude of Alberta's energy production. North-eastern 17
Alberta alone has a major role to play in supplying 18
Canadian energy needs, and the emissions in this region 19
relate to that supply of Canadian energy needs. 20

With approximately 4,600 21
employees, Syncrude is the largest private-sector 22
employer in the Province of Alberta. We are a major 23
client of contractors and suppliers of all kinds 24
throughout the province and the nation. In an operation 25
the size and complexity of Syncrude, concern for the 26

environment is essential. Syncrude has established, as
corporate policy, that we will do no permanent harm to
the environment as a result of our operations. We back
up this corporate policy with a solid program of
management control of environmental performance, and
it's in the context of this corporate commitment that we
frame our comments this evening.

There are three considerations
which Syncrude believes are fundamental to an effective
air quality strategy:

First, there must be a region-specific scientific
basis for each regulatory requirement;

Second, there must be technical and economic
assessments of the feasibility and practicality of each
regulatory requirement;

And thirdly, we would like to see an air strategy
based on comparison of alternative fuels that includes
an understanding of, and use of, emissions estimates
over the full life cycle for each fuel.

A high standard of environmental
stewardship is a clear responsibility of all citizens,
including industrial organizations. Syncrude has
invested over \$900 million in processes and equipment
the primary purpose of which is environmental
protection. We fully expect to make further investments
to ensure environmental protection. As social norms

evolve, requirements are better understood, and 1
technologies are further developed. 2

Our knowledge and understanding 3
of environmental issues are increasing rapidly. New 4
concerns are being identified and explored. As a 5
society, we are being challenged to respond to these 6
changing, increasing demands in a measured and 7
responsible manner. As a society, we must allocate 8
funds wisely or risk the economic future of our province 9
and its citizens. 10

Syncrude recognizes that its 11
operations are a major component of achieving 12
satisfactory air quality in Alberta. Our past 13
expenditures, and expected future expenditures, are 14
understood in that context. The three considerations on 15
which our comments are focused are those which we 16
consider the keys to ongoing wise development of 17
Alberta's resources. 18

So turning first to 19
region-specific and scientific basis, the environmental 20
issues are evolving very rapidly, in many cases 21
outrunning the scientific foundation or even support. 22
In other cases, there is strong justification for action 23
now. Frequently, scientific understanding allows 24
identification of regions where strong action is 25
appropriate, and areas where a similar level of effort 26

would not be cost effective.

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An excellent example of region-specific action is the plan for management of NOx and VOC, volatile organic compound emissions, now being finalized by Canada's federal and provincial governments in which there is clear demarcation between those geographical areas at greatest risk and areas of lesser concern, and Mr. Millard touched on this earlier.

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Syncrude is a major point source of SO₂ emissions, one of the top ten sources of SO₂ emissions in Canada. We recognize the onus is on Syncrude to ensure these emissions do not harm the environment in the area around our plant. Since 1975, prior to the startup of our plant, we have had a program of environmental monitoring, including regular monitoring of lichen species diversity, vitality, and chemical composition, using infrared photography to assess vegetation stress. Last summer, Syncrude conducted a major field program searching for possible trends in soil acidification in our region. This program included the use of an innovative technique of tree wood ionic ratio analysis to identify trends in time or space adjacent to our plant. The results of this work will be shared with government and the public once analytical work has been completed.

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We are committed to continue

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scientific assessment of acidification in our region and 1
we are looking forward to future partnerships with 2
government in an expanded scientific program. Syncrude 3
considers this scientific activity, and the resultant 4
understanding, an essential precursor to regulatory 5
action in our region. That said, if action is required, 6
Syncrude fully intends to execute the necessary actions. 7

It is worth placing this in 8
context. Total annual SO₂ emissions in north-eastern 9
Alberta from the two sources, Syncrude and Suncor, are 10
about 150,000 tons. Emissions in the north-east region 11
of the United States total 19 million tons. In the Ohio 12
valley alone, there are emissions equivalent to over 100 13
Syncrude plants lined up along the valley. 14

Inco in Sudbury, even after 15
implementing extensive reductions since the 1960's, 16
currently emits ten times as much SO₂ as does Syncrude, 17
and further, NO_x has a major role, and nitrogen dioxide, 18
dioxides in nitrogen, has a major role in both soil 19
acidification and ozone stress on vegetation, and an 20
aspect of the oil sands industry is that we have an 21
exceptionally low ratio of NO_x emissions to SO₂ 22
emissions. 23

It is not obvious that 24
north-eastern Alberta has an acidification problem. 25
Syncrude considers a solid scientific assessment, 26

specific to our region, a prerequisite to a change to
regulatory requirements in the region.

I would like to cite a positive
example, that was mentioned by Don Klym, of a
region-specific action, and that's the work of the Fort
McMurray Regional Air Quality Co-ordinating Committee.
This committee is a joint commitment by government,
industry, and local communities to work on air quality
concerns relative to the Fort McMurray and Fort MacKay
region. For example, the committee has developed and is
in the process of implementing a protocol designed to
reduce odours in local communities caused by oil sands
operations.

And I would like to respond to
Pat McInnes' concerns about communication and the need
for resident support in reducing odours in the region.
Both these components are built into this protocol, and
we are looking forward to extensive communication of
odour concerns and odour abatement actions in the
region, and we are looking forward to resident
participation in helping us understand odours. The
operating plants require correlation between plant
activity and odour incidents, and we are looking forward
to a better understanding of these issues. We need
resident help.

Syncrude considers this Odour

Protocol an excellent example of the power of 1
region-specific action and recommends this model be 2
given due consideration in the formulation of the Clean 3
Air Strategy for Alberta. It is virtually impossible, 4
and likely counterproductive, to attempt to develop 5
legislation and regulations to cover every circumstance. 6
Certainly, a better approach is to establish a framework 7
which encourages co-operation amongst regional 8
stakeholders to realize common goals. 9

Turning now to technical and 10
economic practicality, it is obvious that the Clean Air 11
Strategy for Alberta is constrained by technical and 12
economic considerations. Within our province we must 13
ensure our actions are practical and achievable, and we 14
must ensure we are not consuming resources which would 15
be better directed to more severe problems elsewhere. 16

It is not obvious that Alberta 17
must settle for the status quo. An example in Syncrude 18
is the Naphtha Recovery Unit. One environmental issue 19
associated with the existing hot water process for 20
extraction of bitumen from oil sands is the loss of 21
naphtha diluent to the tailings pond. Much of the lost 22
naphtha is bound to the mineral particles in the 23
tailings and is buried in the tailings deposit. 24
However, some naphtha enters the air as a fugitive 25
emission, contributing to local odours, ozone formation, 26

and ultimately to atmospheric carbon dioxide. 1

Syncrude attacked this problem 2

through research, development, and construction of a new 3

process unit. The point is without Syncrude's 4

fundamental research and development, recognized as a 5

new technology in a Canadian patent, this process and 6

this operating unit would not exist, and I would like to 7

point out this technology has also been implemented by 8

Suncor under licence to Syncrude. 9

It's worth noting that Syncrude's 10

Naphtha Recovery Unit is a classic example of waste 11

management activity, recovery being one of the four R's 12

of waste management, which is both environmentally 13

beneficial and economically attractive. 14

This example illustrates that 15

things which are impractical now may, in fact, become 16

practical in the future. The Clean Air Strategy for 17

Alberta must recognize practicality and economic 18

feasibility. However, the strategy should also include 19

mechanisms for support for research and development. To 20

ensure that research does take place, the strategy 21

should give direction to research and development 22

programs, highlighting priorities and exploring funding 23

structures. This is an area where joint action by 24

industry and government can lead to cleaner air and a 25

healthier environment in the long term. 26

In Syncrude's case, we are 1
currently conducting research and development in several 2
areas which have potential to yield air quality 3
benefits. These include further development of the 4
naphtha recovery technology I described; metallurgical 5
and process changes to enhance boiler reliability, which 6
people who are familiar with our operation know that we 7
are most liable to cause environmental impacts when we 8
divert gas streams around our boilers, boiler 9
reliability is a key issue for us; and thirdly, we are 10
studying processes for sulphur emission reduction. 11

Syncrude considers sulphur 12
emission reduction an example of an area where emissions 13
reductions are constrained by technology and economics. 14
Over the past five years, Syncrude has reduced by 30 15
percent its emissions of sulphur dioxide per unit of 16
production. Given our current technical knowhow, it is 17
difficult to reduce emissions further. Therefore, our 18
current focus is on technology development, and the 19
limiting factor, the factor that's difficult for us to 20
overcome, is the retrofitting of new equipment within 21
the confines and the configuration of an existing plant. 22

Syncrude considers it essential 23
the Clean Air Strategy for Alberta contain explicit 24
recognition of technology and economics as constraints, 25
and explicit recognition of the difference between new 26

plants and retrofit situations.

1

I will, in the interest of time,
go directly to a summary of our recommendations.

2

3

Syncrude recommends the Clean Air
Strategy for Alberta include the following elements:

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5

One, the strategy should include a commitment to
environmental impact assessment as a prerequisite for
regulatory action;

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Two, the strategy should clearly state that
regulatory requirements will vary from region to region
to reflect the environmental needs in each region;

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10

11

Three, the strategy should support the concept of
joint government, industry, and community action within
regions to work regional issues;

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13

14

Four, the strategy should establish technical and
economic feasibility as tests for application of
regulatory control, unless there is a clear risk of
permanent environmental damage;

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Five, the strategy should draw a distinction
between regulatory requirements for new facilities and
those for retrofits to existing facilities;

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Sixth, mechanisms to encourage and support
research and development of new emissions control
technologies should be a key component of the strategy;

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23

24

And finally, the strategy should support research
into and assessment of full life-cycle emissions of

25

26

radiative gases, greenhouse gases, associated with
specific fuels.

Thank you again for the
opportunity to present these remarks to this meeting.
Thank you.

MODERATOR MILLARD: Thank you, sir. Gordon Shaw of
Fort McMurray?

GORDON SHAW: Thank you, Vern. I am Gordon
Shaw, I will be speaking on behalf of the City of Fort
McMurray. I will be making a brief presentation
tonight, as I understand we have until January 15th to
make a more extensive submission at that time?

MODERATOR MILLARD: Yes.

GORDON SHAW: The City of Fort McMurray
welcomes the opportunity to provide comments on a Clean
Air Strategy and to recommend options for action. As
you may be aware, there are two large oil sands
facilities located within 50 kilometers of the City, and
there is a possibility of a third oil sands plant being
developed. As a result, the City is very concerned that
the Clean Air Strategy that results from these public
hearings reflects the regional concerns that you will
hear today.

Hydrocarbon mining and refining
operations generate compounds which are odourous. Both
Syncrude and Suncor expend considerable effort, through

capital expenditures and engineering, to control or 1
eliminate these problems, both on and off-site, and they 2
are to be commended for doing so. 3

However, despite the efforts by 4
the companies and by Alberta Environment, the major 5
problem confronting them is that the sources of odours 6
can be very difficult to delineate due to the sporadic 7
nature of the releases causing them, the changeability 8
of the local meteorology, and the time of response 9
available to industry and government investigators. 10

This is reflected in the number 11
of complaints received from the Fort McMurray region in 12
the first half of this year, and the number of incidents 13
resolved compared to complaints, as shown in this table. 14

This is the table I have for you. 15
In the first six months of this year the total number of 16
complaints were 85, the total number of incidents were 17
43. In Fort McMurray, the complaints-to-incidents ratio 18
was 80 to 37. The number of incidents that were 19
resolved were 13, and the number of incidents 20
investigated were 20. Although the number of complaints 21
may seem small when compared to the population, Wallace 22
found that factors which influence the effectiveness of 23
any reporting system include the following: 24

One, the public awareness of a complaint reaction 25
system; 26

Two, the public motivation to act on experiencing 1
odours; 2

Three, the success at generating a response to 3
complaints registered by the public; and 4

Fourth, the availability of investigatory 5
personnel and equipment. 6

It is important that the Alberta 7
Environment complaint line have increased advertising 8
and education and information work done in the Fort 9
McMurray area to educate people to the capabilities of 10
this system. It is true that RAQCC is developing a 11
Communications Strategy to address this problem, but it 12
is important that people understand that the complaint 13
line will result in action being undertaken and that no 14
repercussions will result from doing so. 15

It is also important that the 16
response time devoted to detecting and isolating odours 17
be quick. If you have ever been in Fort McMurray when 18
odourous emissions are present, you know that such 19
odours can cause mental and physiological stresses. 20
Typical reactions include nausea, headache, loss of 21
appetite, impaired breathing and, in some cases, 22
allergic reactions. 23

This leads to the next issue: 24
the monitoring network presently used to detect odourous 25
emissions. A monitoring system should be capable of 26

operating 100 percent of the time.

What do I mean by that? In the first six months of this year, I can give you several examples of this. In January the THC was operational for 22.2 percent of the time; in February the THC was operational for 85.9 percent of the time; the COH was operational for 92.3 percent of the time, and the H2/S was operational for 78.6 percent of the time; in March of this year the CO was operational for 85.5 percent, COH was operational for 82.8 percent, H2/S was operational for 85.3 percent, NO was operational for 84.7, NO/2 was operational for 84.7, NOx was operational for 84.7, O3 was operational for 84.7, SO/2 was operational for 85.1, and THC was operational for 85.6; in April most of these were operational for 100 percent of the time; in May COH was operational for 66.1 percent, the THC was operational for 90.1 percent; in June of this year COH was operational for 77.2 percent while THC was operational for 64.6; finally, in July, THC was operational for 54.7 percent of the time, and COH was operational for 88.3 percent.

Unless the monitoring system is operational for 100 percent of the time, then what's the purpose of having that system in place? It's important for the health of the citizens of Fort McMurray that the system is operational for 100 percent of the time, not

for the percentage of time that I have indicated for the 1
first six months. 2

So these are just general 3
observations that the panel should be aware of when 4
developing a Clean Air Strategy. In that strategy, the 5
problems identified here should be addressed if the 6
strategy is to be successful. Fort McMurray is a unique 7
situation requiring unique solutions. 8

The opportunity to speak before 9
the panel to outline the problems that occur here is 10
welcomed. It is hoped that the solutions provided in 11
the Clean Air Strategy will be equally welcome. Thank 12
you for your time. 13

MODERATOR MILLARD: Thank you, sir. Now is Chief 14
McDonald present by any chance? Jim Rogers? This, I 15
take it, is a separate submission? 16

JIM ROGERS: Oh, yes, sir. This is a greivous 17
kind of a situation, but because I am representing the 18
Trappers' Association I am, therefore, sort of 19
disenfranchised from having, you know, my own 20
irresponsible presentation by comparison. 21

A number of things that 22
personally affect me or are observations of my fairly 23
substantial involvement over the number of years, and I 24
have a couple of observations and I don't know if this 25
is particularly in order, but when both of my friends 26

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here have made some comment about good science, I would 1
suggest that good science is clean science, and if we 2
want our science to be clean then we should have, as 3
Bruce has indicated, a sort of a community endorsement 4
behind the design of research projects and the 5
monitoring strategy so that then they will have some 6
kind of confidence with the community, because I am 7
inclined to find myself more and more sceptical when I 8
find us in this antagonistic kind of challenge and legal 9
process. This is our community, this is our atmosphere, 10
this is our future, and these are our industrial 11
developers who are developing our resources for us. 12
Hopefully they are going to make a buck, they are going 13
to be able to carry on, and they are carrying on to 14
render services to our community. 15

For them to be seeing themselves 16
as conspiring to hoodwink the system or restrain or 17
constrain their employees from participating in the 18
community life and saying, well, we have 20 or 30 of the 19
best-informed specialists in the world in our community 20
but they don't participate in our environmental groups 21
because that would be somehow a conflict of interest is 22
somewhat akin to saying to your children, well, I don't 23
want you to talk to the other kids in the playground 24
because you might say something about what's going on at 25
home and we don't want that to get out. 26

It would appear that the 1
direction that we want to be moving in is a direction 2
that would cause industry not to even consider fudging 3
the data, disconnecting the instrument, or slipping by, 4
that they should be able to live with and be straight 5
out front with their reality, and our system, the 6
environment and us, are presently absorbing all the 7
impacts and we should continue to, but working in the 8
real spirit of citizenship on all directions. 9

I am concerned about the concept 10
of direct stakeholders. I am concerned that it isn't 11
good enough to say, well, there is nobody really living 12
downwind from emission point X and so there is really 13
nobody that's directly concerned about the global common 14
in that direction, and therefore it sort of just, it 15
sluffs off over there, and I would personally recommend 16
that some of our recognized environmental groups be 17
recognized as, in fact, concerned with the quality of 18
life on the planet or the global common, and one of 19
those groups, I would suggest, is the native bands, 20
because they seem to have a spiritual or a mandate under 21
their culture to be concerned about the whole, which 22
some of us find some frustration with in the system and 23
somebody saying, oh well, you might have an opinion, but 24
you are really just a troublemaker if you want to 25
concern yourself with that particular aspect of the 26

environment.

I bring to your attention that
when I was a child, my father was in the Army, and he
told us about a little transmitter headquarters building
that the military had on a flying boxcar, and the
parachutes sort of pulled this thing out of the rear end
of the aircraft and it went down, and the parachutes
didn't open and it went about ten feet into the ground
with things flying, and he referred to this as
"thundering in", and my concern as an individual is that
our environment may well be in some like state, that if
you and I or we in this room were sitting in that little
building going down at, you know, the acceleration rate,
we might hear a slight sound but everything might be
quite in order and quite optimistic until, potentially,
things could come to a thundering and surprising windup
on us. And it's not my concern to say that this is the
panic or that we should regard this as what's going on,
but that we should be aware that things like have never
happened before are happening.

I would bring to your attention
that one of the matters of mitigation, particularly to
us as a high producer of airborne pollutants, is our
forests, and any kind of harvest process that, in fact,
wipes out our forests for a substantial number of years,
in their part in that equation, is something to be very

gravely considered as a part of a larger equation. 1

In the forest there seems to be a 2
positive and minus in the equation. It's not just 3
carbon coming out of the atmosphere and no carbon going 4
in. So it may be that we can design management or 5
harvest techniques that would minimize the losses and 6
maximize the things that would detract from the 7
equation, and that kind of examination of harvesting 8
techniques and reforestation may yield something into 9
that larger equation with the atmosphere. 10

I just made some mention there 11
about the illusion that a person may be regarded as just 12
a troublemaker, and when I have been an intervenor in a 13
number of initiatives in this area I have voiced a 14
concern that if we don't put a maximum amount of 15
pressure on our industry, that they will maybe behave in 16
such a manner as to curtail future developments, and I 17
can sort of rest a little bit easy that I have done the 18
best I could and feel that I have done a responsible job 19
in trying to force or push that issue, that we wouldn't 20
then find ourselves already exceeding the limits of our 21
airshed or in a position where an OSLO might come in 22
with an increment of five percent of the emissions that 23
one of our other plants does, and that we don't have 24
enough room in our airshed for even five percent, that 25
we are already overdone in that way. 26

And I want to bring to your 1
attention that the last thing in the world the people 2
who are trying to be environmentally responsible need is 3
to have, see somebody like CSIS or the CIA or some 4
well-funded, well-oiled conspiracy against the public 5
good, from my point of view, out there photographing, 6
fooling around, diddling around, bugging up our 7
democratic process and the process of information within 8
our country. It is absolutely the sickest, saddest kind 9
of a commentary that our Federal Government would be 10
saying we don't have enough money for education, we 11
don't have enough money for this and that, but we do 12
have enough money to afford a squadron of no-name human 13
beings to show up on the steps of the legislature and 14
photograph people day after day just in case they are 15
plotting the violent overthrow of the government, and on 16
behalf of my children and myself and numbers of my 17
friends who are trying to do a good, honest, responsible 18
job as citizens of this country, I want to log my 19
strongest kind of complaint. I know that it's not your 20
decision, or anybody here, but that message has to get 21
back up the chain to our government; that if they want 22
to take the responsibility down there in Langley, 23
Virginia to say nothing is going wrong and we will 24
cosign the cheque, then they better start standing up 25
and doing it, but otherwise we are, all of us, asking 26

questions, and all of us hopefully trying to put 1
together our little individual bits of data to come up 2
with a picture of what's really happening, what our real 3
priorities have to be or might be and what strategies we 4
can take or make that may ameliorate any negative 5
impact. I thank you. 6

MODERATOR MILLARD: Thank you. Is there anyone else 7
that would like to make a submission? I know that there 8
is no one else registered but -- I take it not. 9

It's now close to 9:00. We have 10
got a little bit of time for discussion. Are there any 11
comments that anyone would wish to make? Yes, sir? 12

ROD MacLEAN: Yes. Could you explain the 13
process by which the input that you have received today 14
is going to end up as part of the government strategy? 15
Just, you know, it goes from here to the bureaucracy and 16
is typed up, and then it goes to the -- just, you 17
probably know it better than I. 18

MODERATOR MILLARD: Well as I understand the system, 19
and I haven't been involved in it at all, but -- 20

ROD MacLEAN: Pardon me. Who are you anyway? 21

MODERATOR MILLARD: My name is Vern Millard, and I 22
have been asked by the government to moderate these 23
regional sessions that are being held throughout the 24
province. We had one session in Bonnyville on Tuesday, 25
and others will be held in Pincher Creek and Medicine 26

Hat and Peace River, Edmonton, Red Deer, and Calgary. 1

There was a workshop in September 2
at which, and I don't know, I wasn't involved so I 3
really don't know very much about it except what I have 4
read about it, but in which there was a group of people 5
from various walks of life, environmental, industry, 6
public health, government, etcetera, that got together 7
and talked about issues relating to a Clean Air 8
Strategy. They set out to identify some of the 9
problems, they looked at actions that might be taken, 10
and they considered programs that might be developed, 11
but particularly the identification of issues. 12

Then there are these regional 13
meetings that I have referred to to gain input from the 14
public with respect to these issues. A set of documents 15
has been prepared that provides a focus in terms of the 16
kinds of problems that one can identify as needing a 17
strategy, a Clean Air Strategy. If you haven't seen the 18
documents I would certainly commend them to you. I 19
found them very interesting in reading them through. 20

Then there will be, after these 21
sessions are finished, I will be completing a 22
Moderator's report summarizing what people have said and 23
commenting on it, and it will be a public document of 24
course. 25

Then there will be another 26

workshop, in the spring of this year, to take into
account all of the things that have been said and to
flesh out programs that can be instituted to assist or
to develop a sound Clean Air Strategy, and then there
will be a final report that will go to the government,
and it will then consider that report and decide what it
wishes to do.

That's the program as I
understand it. I know other people here have been
involved to a greater, well I haven't been involved at
all, but who have been involved from the beginning.

Cheryl, is that a fair statement,
or would you want to modify that?

CHERYL BRADLEY: Yes, I think that's a very fair
statement, and maybe we should add that there is an
advisory committee to this process which contains
representatives from the Canadian Petroleum Association,
Independent Petroleum Association, the Alberta
Environmental Network, the Urban Municipalities
Association, and others. We have two of the members who
sit on that advisory group with us tonight; Al Brekke of
the Alberta Utilities Planning Commission and Jim
Boucher from Fort MacKay, so you could chat with them
perhaps a little bit after if you want to learn a little
bit more about how the advisory groups work and its
puts. But they keep us focused on the straight and

narrow.

1

BOB MITCHELL:

I am Bob Mitchell, Clean Air

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Strategy office. Two things I would like to add.

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One is that a lot of the

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information that Vern mentioned, the additional

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information, is on the back of all the fact sheets there

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which a lot of you already have. You can phone our

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office and we will send it to you.

8

The other thing that I would like

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to emphasize is that the Minister of Environment and the

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Minister of Energy have committed that the

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recommendations coming out of the entire process will be

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submitted to Cabinet and they will be considered.

13

MODERATOR MILLARD:

Thanks Bob. Yes?

14

DOUG FAULKNER:

As a parent and a concerned

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citizen and a resident here for 12 years, I am appalled

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at the City's submission this evening on the hydrocarbon

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emissions and the monitoring system.

18

Is there anybody I could ask the

19

question to here; who controls the monitoring system and

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how often is it, on a daily basis, and if so I would

21

like to support the City representative, Mr. Shaw, in

22

backing him that this system should be operational 100

23

percent of the time.

24

Now as I wrote down some of these

25

figures from January to July I am appalled that in

26

January, when our weather is fairly cold here and the 1
atmosphere is quite heavy, that that was only working 22 2
percent of the time; then in the summer months, May, 3
June, July and no doubt August, September when our 4
children seem to be outdoors most of the time and 5
playing, this monitoring system only operated 6
approximately 65 percent of the time. 7

I would like to stress the 8
importance that whoever polices this monitoring system 9
should pay stricter attention to it. If only 13 10
complaints were resolved in the six months, how many 11
complaints are there that haven't been resolved, how 12
many complaints haven't been called in? 13

As an allergy sufferer myself it 14
is the most difficult time of the year for me, 15
summertime living in Fort McMurray, and it really 16
bothers me. Having children, I am concerned, I am 17
gravely concerned that the atmosphere -- and I have 18
heard, I don't have anything to substantiate what I am 19
saying -- but I have heard via the grapevine that the 20
medical profession of this community, in a couple of 21
years past, was so concerned about it that one M.D. 22
resigned and left the community, and I don't know how 23
accurate that might be. 24

But it is a problem. I feel that 25
Fort McMurray has enough concerned citizens that would 26

like to pass on to you, and as a citizen and a parent 1
that would like to pass on to you and through this body, 2
our concern that somebody should be policing this thing 3
a little more closely. 4

I would like to ask a question to 5
Synchrude and Suncor rep's tonight, that if 30 percent of 6
the sulphur dioxide emissions, or if they were reduced 7
30 percent, what amount is passing into the atmosphere? 8
Do you have any record of how much sulphur dioxide is 9
passing into our atmosphere daily from your plants? 10

BRUCE FRIESEN: If I could, I wondered if you had 11
another point, but I would love to respond to a couple 12
things you said, first off the last one. 13

SO/2 emissions in this region, 14
Synchrude and Suncor are the ninth and tenth largest 15
single sources of SO/2 in Canada. I can speak for 16
Synchrude. Our emissions amount to 200 tonnes per day of 17
SO/2, and that number is reported monthly. We have a 18
monthly report to Alberta Environment, and all the data 19
we supply Alberta Environment is publicly available, you 20
just have to ask. The gentleman is here, Bill 21
Macdonald, put his name on a letter and he will pass it 22
through the system and get it to you. 23

We also stand up quarterly in a 24
public forum, this Regional Air Quality Co-ordinating 25
Committee with representatives from the City of Fort 26

McMurray, from the MacKay Band, we stand up in public 1
and describe our air quality performance. We are not 2
always as proud of it as we would like to be, but we 3
never hide it, it's public. 4

And maybe it's not fair, Ann, but 5
Councillor Ann Dort-MacLean is the City of Fort McMurray 6
representative. So as I say, it may not be fair, but 7
Ann has the data. 8

DOUG FAULKNER: Thank you. 9

BRUCE FRIESEN: I am using a pad of paper here 10
that's re-used, and there is stuff on the other side and 11
I turned it over and the heading here was Number of 12
Suckers by Survey, 1989. 13

I sincerely hope that Syncrude is 14
not treating the citizens of Fort McMurray as suckers, 15
but rather that we treat the citizens of Fort McMurray 16
as "stakeholders", is the buzzword, the joint occupiers 17
of this region, and particularly on the SO/2 research 18
that we are doing, we are very keen to have full 19
understanding of the acidification in this region, 20
developed not in-house by Syncrude and not in-house by 21
the government, but by a joint group. 22

While I am on my feet, I might be 23
a little out of line, but I would like to comment on 24
this monitoring question. All the numbers that have 25
been quoted to date relate to one of twelve air quality 26

monitoring stations operating in this region. Syncrude 1
operates five stations, Suncor operates five stations, 2
Alberta Environment operates a station in Fort MacKay 3
and a station in Fort McMurray. 4

The five stations operated by 5
Syncrude, by law, must achieve at least 90 percent 6
uptime for every individual analyzer in each of the five 7
stations, and I just wanted to -- 8

DON KLYM: I guess, in defence of Alberta 9
Environment -- maybe, Bill, you want to speak to that? 10

BILL MACDONALD: I would like to make a couple 11
comments. 12

DON KLYM: Could I get the Suncor comments 13
out of the way, Mr. Moderator? 14

MODERATOR MILLARD: Sure. 15

DON KLYM: Suncor emits, on the average, a 16
little higher than Syncrude. We average about 220 17
metric tonnes or tonnes per day of SO₂ to the 18
atmosphere. 19

And I just wanted to add that 20
there is a licencing, a licensed limit, in our case it's 21
310 tonnes per day is the licensed limit. In our case 22
we have two sources, our powerhouse stack and the 23
sulphur plant incinerator stack and some flaring on top 24
of that. 25

And the other thing that I would 26

like to add, that based on modeling of dispersion of 1
that SO₂ into the atmosphere, based on verification in 2
the field as to where that SO₂ goes, the bulk of our 3
SO₂ is deposited nearby the plant, it's within 15 4
kilometers or so. We can verify that with, you know, 5
through modeling or actual verification in the field, 6
looking at soils and lichens and the likes of that sort 7
of biological indicators. 8

Just to add to that, we also 9
biomonitor. Biomonitor means looking for effects in the 10
forest to see if things change over time, and Syncrude 11
has a similar program. We look at lichens, we look at 12
leaves on the trees and so on, and we do that since 13
1975, and of course Suncor has been emitting at 14
approximately that rate since 1977, and Syncrude came on 15
stream in '78, and we find very little out there. 16

And this is all public 17
information. We have -- the reports are available as 18
well. 19

MODERATOR MILLARD: Bill Macdonald? 20

BILL MACDONALD: Yes. My name is Bill Macdonald, 21
I am with the Air Quality Branch of Alberta Environment, 22
and the concerns you have expressed are very valid 23
concerns and we have a problem with those numbers that 24
you indicated there also. 25

As Bruce mentioned, we do have 26

the station in Fort McMurray and we also have a station 1
in Fort MacKay that we operate. We have numerous 2
parameters in those stations. 3

The problem that we have had over 4
this last year was with staff, and with our Fort 5
McMurray office we had a changeover in the staffing, but 6
in the meantime we have been flying people out of our 7
Edmonton office on a weekly basis to do, come up and 8
check the monitors and do calibrations on the 9
instruments, but there definitely has been downtime on 10
some of the instruments and we will be doing a better 11
job in the future with that Fort McMurray station. We 12
just recently have hired a replacement permanent 13
individual for the Fort McMurray office here, and so 14
he'll be doing the checks on the instruments and 15
trailers on a daily basis, doing the proper 16
calibrations. 17

In the meantime, generally what 18
we try to target for any of the stations in the province 19
is to get a minimum operational time for each analyzer 20
of 90 percent uptime. You have got to understand that 21
there is going to be a little bit of downtime with 22
technology of the instruments there, but we try to, 23
generally we have them up quite high, in the high 90's 24
or 100 percent in the analyzers, and it's our fault, and 25
we are going to be doing a better job about that very 26

soon.

DOUG FAULKNER: So is it that the May, June, or
the June, July especially, especially the July month,
you were short-staffed or the changeover of staff?

BILL MACDONALD: Well we had a changeover. We had
a person that left, and then we were hiring in for a new
person, and that took a little while. In the meantime,
we were flying people out of our Edmonton office to look
after the stations. The previous person we had in here
was, also only had stayed for a short duration, there
was also a double replacement fairly quickly, so --

DOUG FAULKNER: May I ask you, how dangerous is
the air quality or the atmosphere around those months
when your monitoring system is down? How dangerous is
it to our children and to those that are playing
outdoors?

BILL MACDONALD: As Bruce had mentioned, there are
numerous other stations in the area. There is ten
company stations, each of Syncrude and Suncor have five
ambient monitoring stations surrounding their plants,
and so we keep tabs on all of those stations. Any time
that there is any readings in excess of the ambient
regulations from any of those ten stations, they have to
get that information into our department within 24 hours
and to take any corrective action.

DOUG FAULKNER: You didn't answer my question.

How dangerous is it?

1

BILL MACDONALD:

What I am saying is we have

2

additional monitors that were getting readings through

3

that time period that weren't indicating any extremely

4

excessive readings, through that time period, from the

5

other stations.

6

What we have done also this last

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year is, from the ten stations that the companies have,

8

we are realining two of those stations from each of the

9

companies to put them more in line with the communities

10

of Fort McMurray and Fort MacKay so we can get a better

11

indication of what's coming from the facilities into

12

both of those communities.

13

But, you know, through that time

14

period those five stations did record readings that

15

would have been in excess of the ambient hydrogen

16

sulphide, and some readings in excess of the ambient

17

sulphur dioxide objectives that we have for Alberta.

18

DOUG FAULKNER:

And you are saying there is no

19

danger to our health and well-being?

20

BILL MACDONALD:

That's what I am saying. The

21

levels that we recorded versus what any effects would be

22

on health, those levels were below any health-effect

23

levels.

24

DOUG FAULKNER:

Has there been any record of any

25

effect on fish and wildlife caused by the sulphur

26

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dioxide emissions and the hydrocarbon emissions? 1

BILL MACDONALD: I guess I am really probably not 2
qualified to comment on that. I am more involved with 3
what just the general readings would be, but I am not 4
sure in terms of studies relative to animals in the 5
area, or what. 6

DOUG FAULKNER: Thank you very much, sir. Thank 7
you. 8

BILL MACDONALD: But the other point on that, I 9
guess that, you know, relative to the levels that we are 10
seeing at the stations, even the ones that are over 11
ambient objectives because we have a lot of leeway on 12
where those objectives are, any of the readings that we 13
have seen would not be a health concern for people and 14
also, conversely, for animals, but I am not aware of any 15
studies that have been done that checked out animals or 16
tagged animals to check for effects on them in the area, 17
and I think that's what you were asking. 18

DOUG FAULKNER: I want the commission to be aware 19
that we are concerned as families and parents. 20

MODERATOR MILLARD: Thank you, sir. I think there 21
was a question? 22

PAT MCINNES: I beat you, Jim. I had a 23
question for you. 24

 What about the high levels of 25
ozone? Like, the ground-level ozone was really 26

disgustingly high. Our normal annual for the year went 1
from 0., or point .020 ppm's in 1987 for an annual to 2
.022, and this year, new math, old math, no matter how I 3
try and figure it out, we are sitting at .028. That's a 4
hell of a big jump. 5

I checked Forestry, I checked 6
Environment Canada, the weather during that time period 7
wasn't any different. Could somebody possibly maybe 8
look into it and get back to me with an answer, because 9
that is something that is serious, and it does affect 10
people's health in the long term, and if it's becoming a 11
trend then I think it's something we definitely have to 12
look at very seriously. 13

BILL MACDONALD: Just on that ozone question, we 14
did, we have looked at some of the older ozone data and 15
there has been some studies done in what we call the 16
Alsands, it's out by, it would be east of Fort MacKay, 17
and looked at some of that data going back a number of 18
years, and there were high ozone readings. 19

PAT McINNES: Are you referring to the 20
Bitumount, the Birchmount ones? They weren't that high. 21

BILL MACDONALD: The Alsands. We are finding that 22
even when the winds weren't blowing from the plants 23
towards the stations, they were still getting a lot of 24
the readings from ozone that would be over what our 25
ambient objectives were in the province, and there were 26

some theories as to what might cause some of that, and 1
one theory is ice falling down, downwash out of the 2
upper atmosphere, that type of thing, but it's certainly 3
an area that we should be doing more studies on. 4

PAT MCINNES: I would really appreciate any 5
more information. 6

BILL MACDONALD: I have got some information that 7
I can send out to you. 8

PAT MCINNES: I would appreciate it. You guys 9
have my name and number and address and everything 10
anyways. 11

BILL MACDONALD: I will do that for you. 12

MODERATOR MILLARD: Jim? 13

JIM ROGERS: I would just like to elaborate, 14
now this is the kind of thing that I am concerned about, 15
but the fellow that was here from Alberta Environment 16
was by the name of Kevin Pilger, and his wife Glenda was 17
a member of our environmental group. 18

She wasn't here, to our 19
environmental meetings, with hands full of confidential 20
documents or anything. She was concerned about the 21
environment, she was quite knowledgeable, it was in the 22
field of what she was interested in, and maybe there was 23
some kind of sluff-over of something that maybe her 24
husband was concerned about or frustrated about that 25
might have gotten to the ear of somebody outside of the 26

secret, soundproof doors of Alberta Environment, but the 1
fact is that he wasn't phased out with somebody else 2
that came in to replace him that he briefed, he was 3
shifted out. I have been in contact with Glenda in the 4
City since, and she is extremely hesitant to have 5
anything to do with any kind of an environmental group, 6
because it could be interpreted that she has had, or 7
that her family has had a very negative experience that 8
would cause her husband to want to look for employment 9
in another province if they could get it. 10

The other one that comes to my 11
mind is that, just prior to the CAP hearing that was 12
held, I believe, up the hill at the MacKenzie Park Inn, 13
there was some word to me that there had been a number 14
of people from the environment staff of Syncrude that 15
had been terminated or retired or quietly dismissed, and 16
there is some sort of a question in my mind as to what 17
might have gone on behind the scenes there and that we 18
haven't seen a responsible management in that field, and 19
those are concerns. 20

The other thing about the 21
animals, I just bring to your attention that we have a 22
problem in this province with white muscle disease. 23
It's caused by an increase in sulphur in the soil which 24
causes our organic bodies, us animals are not able to 25
distinguish the difference between sulphur and selenium 26

in the food, so if the amount of sulphur increases by 1
tenfold it amounts to your body getting only one in ten 2
where it used to get a half in selenium, and in the case 3
of domestic cattle they have been, or calves, they have 4
been able to supplement the food or inject the animals 5
at birth so that they survive, but no such kind of data 6
has been generated on wild populations. 7

On one occasion when I was 8
working near the Syncrude site I came across a juvenile 9
woodchuck that wasn't really able to effectively walk 10
and sort of staggered around. I killed it with a stick 11
and turned it over to the Wildlife Department, which is 12
also, you know, a member of the governmental fraternity, 13
and there was no response came back or report made. 14

We don't know what possible 15
impacts on things like caribou might be, but last fall I 16
flew over my trapline, which is about 40 miles east of 17
the plant, and I found one active beaver house in 288 18
square miles. That sort of is maybe not definitive 19
because it was a fly-over and they may have, you know, 20
lodges in banks somewhere, but generally their ponds are 21
quite large and you can identify them from the air quite 22
readily. 23

MODERATOR MILLARD: As I recall, Syncrude has done 24
quite a bit of work in terms of wildlife inventory, has 25
it not, not directly but through consulting studies? 26

BRUCE FRIESEN: Yes. I would be happy to give 1
sort of an overview of what we do do. 2

MODERATOR MILLARD: Why don't you. 3

BRUCE FRIESEN: We have talked about SO/2 4
monitoring. The longest time series information is this 5
lichen work, and the lichen are the organisms considered 6
most sensitive to SO/2. 7

On the animal side, we do beaver 8
population, moose population, breeding bird population, 9
and species diversity samples, waterfowl samples at 10
regular intervals, typically every second year for each 11
of the individuals species. 12

If you don't mind, while I am on 13
my feet, there has been a lot of discussion of odour 14
tonight, and I thought it worthwhile to just spend about 15
three minutes talking about the odour situation in Fort 16
McMurray. 17

I think it's fair to say, it's 18
certainly true for Syncrude, that we recognize that the 19
level of odours in this community are beyond the 20
socially-acceptable level, we recognize that those 21
odours are associated with physical effects that people 22
find unpleasant, and we are working very hard to reduce 23
the incidence of odour in the region. 24

The difficulties we have had over 25
the past couple of years in responding to odours have 26

been the level of resources available in the region. 1
Alberta Environment and the E.R.C.B. have tried very 2
hard to do an effective job of tracking odours, they 3
have been resource-limited, and for that reason Syncrude 4
and Suncor collectively have moved to resolve that 5
situation, and Bill, you have now hired three additional 6
people on various contract bases to add to the -- is 7
that a true statement? 8

BILL MACDONALD: Yeah, two people under, are 9
coming up under contract. 10

BRUCE FRIESEN: So the resource constraint should 11
be removed now, and every odour incident reported to 12
Alberta Environment should be diligently investigated. 13

And to assist with that Syncrude 14
has established, in addition to our five fixed 15
monitoring stations, we have established or committed to 16
establishing a mobile monitoring station such that, if 17
there is an odour situation in town, we can respond 18
quickly to track, to look for a plume of odour moving 19
away from one or other of the plants, and this is 20
particularly relevant to Fort MacKay, because the 21
response time for somebody based in McMurray to MacKay 22
is quite slow. We have a plant nearby, and also we have 23
people there 24 hours a day so that they don't have to 24
answer the phone at midnight, get dressed, and get in 25
the van and drive, they can respond to the odour. 26

I certainly didn't want to give 1
you the impression, Pat, that I was attacking you, but 2
quite sincerely saying that the expectation is that we 3
will be relying on identification of odour situations by 4
residents to trigger this response, and the outcome of 5
it will be better correlation of odour events with plant 6
events. 7

And this information is not 8
necessary to take some actions to reduce odour 9
situations in the region, some actions are already under 10
way. To cite a Syncrude example, we have a problem with 11
reliability of a particular piece of equipment. The 12
next time that piece of equipment is out of service, 13
which is in March, it is going to be replaced with a 14
new, redesigned version which should be more reliable, 15
and I know Suncor is doing a lot of work, but there is a 16
further understanding required, and this tracking 17
mechanism is attempting to develop that further 18
understanding. 19

I just wanted to make it very 20
clear that we acknowledge this to be a genuine problem 21
in this region. 22

MODERATOR MILLARD: Now you were going to comment on 23
wildlife studies? You mentioned that you -- 24

BRUCE FRIESEN: Well I said we do -- Jim 25
mentioned beaver populations. We have done, every two 26

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years, a beaver population survey by helicopter on our 1
lease for the last 10 or 12 years. 2

MODERATOR MILLARD: And what do they tell you? 3

BRUCE FRIESEN: There is no change in population. 4

MODERATOR MILLARD: Those studies are available for 5
the public to view? I mean if the gentleman wanted to 6
go and look at them, they could do so, could they? 7

BRUCE FRIESEN: Yes, certainly summaries of all 8
the information we have collected were included in the 9
Synchrude submission to the E.R.C.B. in connection with 10
our expansion project, but as a fundamental principle we 11
don't keep anything secret. If people ask, we would 12
prefer to show them the information. 13

MODERATOR MILLARD: Perhaps you might be interested 14
in having a look at the studies? 15

DOUG FAULKNER: Yes. 16

MODERATOR MILLARD: Any other comments, questions? 17

JIM ROGERS: I will just make a comment to 18
that, and that is that I don't know if they are 19
harvesting the beavers on their lease, but it's pretty 20
well an understood thing that if the population isn't 21
managed it goes through rise and fall, and to say that 22
it's unchanged is probably something that Bruce would 23
like to qualify sometime, because these populations go 24
through a quite predictable rise in population, they 25
then destroy the ability of their habitat to carry the 26

population, and then they drop off quite radically, and 1
one of the problems that we have in finding an indicator 2
species is to determine what population they would 3
approach before they would collapse in an unstressed 4
circumstance, and then try and interpolate that to see 5
if they have met that requirement of population density 6
prior to the collapse, but it's not maybe quite as 7
simple as he has indicated here. 8

BRUCE FRIESEN: You are quite right, Jim. When I 9
said "unchanged", I was speaking in a scientific 10
context. It might be twice as much next year as it was 11
last year, but two years later it might be what it was 12
four years before, and the overall trend is unchanged. 13

And you are quite right that 14
these large animals are not good indicator species. 15
Moose, beaver, waterfowl, they are not good indicator 16
species, but when we are doing our environmental 17
monitoring around our operation, we have two categories 18
of study; one category of study is studies of good 19
indicators, sensitive indicators; the second category of 20
study is studies of species that are important to people 21
in the region and, therefore, people in the region want 22
the information. 23

So we recognize they are not good 24
indicators but we recognize the value of the information 25
to people. 26

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MODERATOR MILLARD: Other comments or questions? 1

Well if not, let me say on behalf of the people that are 2
conducting the Clean Air Strategy that we appreciate 3
your comments and your attendance at the meeting and 4
appreciate the ideas that you have put forward. 5

Thanks very much, and good 6
evening. 7

(Meeting ended at 9:30 p.m., Thursday, November 8th, 1990) 8

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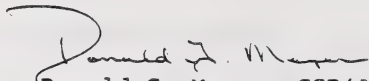
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CLEAN AIR STRATEGY FOR ALBERTA

Transcript of Proceedings

Regional Meeting

Held at Peace River, Alberta, on
Tuesday, November 13th, 1990

Appearances:

Vern Millard -

Moderator

Susie Washington -
and Cheryl Bradley

Western Environmental and Social Trends

Don Meyer, CSR(A) -

Court Reporter



Transcript of Proceedings

(Meeting commenced at 7:15 p.m., Tuesday, November 13th, 1990)

MODERATOR MILLARD: Could we start the meeting,
ladies and gentlemen, please?

Well good evening, ladies and
gentlemen. Let me say welcome to you on behalf of all
of the people, government and industry, that's involved
in the Clean Air Strategy.

My name is Vern Millard, I have
been asked to moderate these hearings or meetings, I
should say, discussion groups, regional discussion
groups.

The Clean Air Strategy has been
designed to consider some of the problems facing our
world today, and I have been asked to make some
introductory comments, and what I have done is to take
some of the fact sheets that the Clean Air Strategy has
put together, which I have quite frankly found very
interesting and helpful, and I have just made some notes
on them, and I will just go and comment on them, so that
he can get close enough so that I can see them.

Well first of all, the question
is what is the Clean Air Strategy, and if we look at the
state of the world today there is a growing consensus,
on an international basis, that there are problems
developing in our planet, primarily caused by emissions

that we are all making into the atmosphere.

1

The Clean Air Strategy is

2

designed to consult with people to get their views about

3

these matters, and the Clean Air Strategy has three

4

basic objectives; first of all to identify the issues

5

and the important issues; secondly, to develop practical

6

alternatives and ideas how to solve them; and then to

7

present a plan to government.

8

The Clean Air Strategy has four

9

main phases. The first phase took place in September of

10

this year, when a group of people that are interested in

11

this particular area got together to talk about the

12

kinds of issues that relate to clean air. Out of that

13

they developed an identification of the major issues.

14

The second stage are these

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regional meetings. Last week we in were in Bonnyville

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and Fort McMurray getting the ideas and input from

17

people in those communities, and of course we are

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carrying on that same plan tonight in Peace River,

19

Friday night in Edmonton, and so on. We are going to be

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visiting Red Deer and Calgary and Pincher Creek and

21

Medicine Hat for further meetings.

22

After the regional meetings,

23

there will be a workshop in the spring of next year to

24

further refine the issues and alternatives.

25

And finally a report, which will

26

include recommendations and proposals, will go to the 1
government. 2

What are the major problems? 3

Well, as I said before, there is a question of emissions 4
into the atmosphere, and there is a growing consensus 5
among scientists and research-oriented groups that we 6
are developing a problem for our planet. For example, 7
there was a recent meeting in Geneva with 700 scientists 8
looking at the global warming effect, or what is 9
frequently called greenhouse effect, and there are three 10
main problem areas. 11

The first is that greenhouse 12
effect, and fundamentally what it means is that the heat 13
that is being radiated from the earth is being trapped 14
by gases in the atmosphere, and it returns to earth. 15
That's the theory, and there seems to be growing 16
evidence that that is indeed happening. If you look at 17
long-term temperature trends of the earth, you will find 18
that they are getting higher. The last decade has been 19
particularly that way. So the greenhouse effect can 20
have this global warming, which has an impact on the ice 21
cap, the level of the oceans, which of course has major 22
problems, or potential problems, for maritime nations. 23
It also has a feared impact in terms of extremes in 24
weather, not only warming, but greater extremes. 25

I think there is a figure that 26

kind of shows how the global warming takes place, and
you can see that normally the heat from the earth is
radiated into the atmosphere, some of it comes back, but
when the so-called greenhouse gases accumulate, it means
that more of that heat returns to the earth, and hence
the warming impact.

Now a second major potential
problem area is acid deposition, so-called acid rain,
and that's had a good deal of publicity over the last
decade or so. We have all heard about Eastern Canada
and the Eastern United States and the problem with clean
air and the need for agreements between Canada and the
United States. Fortunately, that seems to be making
some progress.

Acid rain is caused by sulphur
dioxide and nitrogen oxides being emitted to the
atmosphere. Thinking in terms of Alberta, the sulphur
oxides primarily occur from processing sour gas or
burning coals, which contains some sulphur even though
it's low sulphur content, or sour, processing or
producing sour oil.

The nitrogen oxides occur from
industrial developments, but also from our own use of
motor vehicles of various types.

The third problem, and one that
isn't all that common in Alberta, is smog. Those of us

that live in the two major centres see the impacts of 1
the nitrogen oxides that are produced from cars 2
affecting the atmosphere on particularly bad days in 3
Calgary and Edmonton, you see that yellow cloud. In 4
other areas, of course, we all know about the problems 5
in Southern California, there are problems in Eastern 6
Canada as well, particularly along the southern border, 7
Windsor on to Toronto and into Montreal. 8

So smog is more of a regional 9
issue, but it's certainly an atmospheric issue that is 10
created by the emissions that we emit to the atmosphere. 11

Now the next question is what is 12
being done about these problems, and action is being 13
taken on a national and international scene. There have 14
been, or many of the industrial countries have extensive 15
research projects looking into these matters to identify 16
what is really happening, but there have been agreements 17
reached, or agreements in the process of being reached. 18

In 1985 there was an agreement to 19
reduce the sulphur dioxide emissions in Eastern Canada, 20
and a group of countries, European countries; in 1988 21
there was agreement with respect to the reduction of 22
nitrogen dioxides; currently there are discussions 23
taking place and further studies on reducing carbon 24
dioxide. 25

And of course research, as I said 26

before, is continuing on in many places to further
assess these particular matters.

How does Alberta fit into this
total scene? Well to begin with these gases, which are
a major source of greenhouse gases, arise from the
burning of fossil fuels, and Alberta has, as you know, a
substantial storehouse or inventory of that fossil fuel.

Currently, our production of gas
is about 83 percent of the Canadian production; our
production of oil, and that's conventional oil and oil
sands oil or synthetic crude oil, is about 80 percent of
total Canadian production; and our coal production is
about 44 percent. So Canada is a major player in terms
of the production of fossil fuels.

But Alberta is also a major
player in terms of the consumption of fuels, in part
because the fuels are used in the production process.
For example, in terms of producing synthetic crude oil,
you have to use a tremendous amount of energy, so that
energy results in burning fossil fuels. Alberta's share
of Canada's emissions of sulphur dioxides is 15 percent.
Our population, of course, is roughly 10 percent. In
terms of nitrogen dioxide, it's 23 percent; carbon
dioxide it's 22 percent.

So on a per capita basis, Alberta
is the highest per capita consumer in Canada, and Canada

itself is a high per capita emitter of these gases. 1

We also have to recognize, 2
however, that 75 percent of Alberta's oil and gas is 3
sold beyond the province, either in markets in other 4
parts of Canada or in the United States. So that really 5
means that, in a sense, some of those emissions, the 6
emissions that arise from the production of fossil 7
fuels, really take place on behalf of the other areas, 8
the other consuming areas, in either Canada or the 9
United States. 10

In terms of world emissions, 11
Canada's share of the carbon dioxide emissions is only 2 12
percent, so relating that 2 percent to the carbon 13
dioxide emissions from, or Alberta's share of Canada's 14
emissions, roughly a quarter, it means that, really, 15
Alberta's share of the world emissions is about half a 16
percent, and that is probably part of the reason that 17
there is difficulty in coming to grips with the question 18
of clean air and a Clean Air Strategy, because the 19
shares of local areas are so relatively small in terms 20
of the total. 21

The fossil fuels are very 22
important in terms of the Alberta economy, and of course 23
we have to be conscious of the other side of the 24
equation. The value of fossil fuels in 1989 was about 25
\$15 billion. \$2.4 billion went to the Provincial 26

Government in the form of royalties, which was about 25, 1
24 or 25 percent of the total government revenues. So, 2
obviously, that issue is important. 3

Furthermore, direct and indirect 4
employment in the fossil fuel industry is about a 5
quarter of a million people, so that's a substantial 6
portion of the total labour force. 7

When you look at the question of 8
emissions, you quickly see that we are all involved in 9
it. Sometimes, in environmental matters, we can point 10
the finger at somebody else and life is a little easier 11
for us under those circumstances, but in this case, we 12
all play a role, and this applies particularly to carbon 13
dioxide and nitrogen oxides. The energy industry 14
accounts for about a third of the emissions, the other 15
industry accounts for about a third, and then the 16
general public, all of us, you and I, account for the 17
other third. And of course we all drive automobiles, we 18
all heat our homes, we do the various things in terms of 19
consuming fossil fuels. 20

An important question in this 21
whole process is considering what we really mean by 22
"clean air". I think it's fair to say that, 23
historically, we have meant air that didn't contain 24
sufficient contaminants to cause health problems to 25
humans, or vegetation problems, or health problems for 26

animals. That's probably too narrow a definition in 1
terms of today's world in thinking in terms of the kinds 2
of issues that I was talking about, particularly the 3
greenhouse effect, because those issues, those problems, 4
are long-term, and even if one made the assumption, and 5
I imagine that some people might not agree with this 6
assumption but putting that to one side, if we agreed 7
that the air that we are breathing today in Alberta is 8
clean, that doesn't mean that we are not causing future 9
problems for our children and our grandchildren in terms 10
of the emissions that go into the atmosphere, the 11
so-called greenhouse effect, because if the research 12
scientists are right that the world is warming as a 13
result of that and we have melting of polar ice caps and 14
we have increasingly extreme weather conditions and 15
changing atmospheric conditions in that form, those 16
problems present long-term issues to us, and 17
consequently they really bring into focus the 18
fundamental question of what do we mean by clean air, 19
for what period; is it today, or is it 50 years from 20
now, or 100 years from now. 21

Now, assuming that we accept the 22
concept that we need to reduce emissions to the 23
atmosphere, I think it's fair to say that there are four 24
basic alternatives. Thinking in terms of Alberta, we 25
can produce less energy. For example, if we decided to 26

shut down the oil sands plants or we decided not to have 1
any more oil sands plants, we would reduce the emissions 2
to the atmosphere. Of course the economic consequences 3
would be rather severe, but that would be one way of 4
reducing emissions. 5

A second way would be for us, all 6
of us, to use less energy, if we simply walked instead 7
of drove, for example. 8

Another alternative is to use the 9
energy more efficiently in terms of our activities. 10
Instead of getting X kilometers from a liter of gas, we 11
could get X plus ten under a different kind of system 12
with new technology. 13

Another way is to shift to 14
non-polluting energy sources. 15

So there are these four basic 16
alternatives but there are -- each of them, of course, 17
has a wide variety of subsets that one can look at. 18

We then come to the question of 19
how can we, as individuals, reduce emissions, and that's 20
the core of why we are here, why we are having these 21
regional meetings, because we want to get your 22
suggestions. Your suggestions will go forward to the 23
workshop that will be held early next year, in the 24
spring of next year, and will be discussed at that time. 25

We recognize that education is a 26

major factor in this whole issue. Susie and I have been 1
talking about this today, about the limited response 2
that we have had in the communities that we have been in 3
to date, and one of our conclusions is that there 4
probably isn't enough education in the general public 5
about these particular problems. But you run into the 6
question of how can this be achieved, how can we become 7
convinced that we, as individuals, need to change our 8
lifestyles in order to protect the environment for 9
future generations. 10

We are hoping to develop policies 11
and programs that will result in an effective Clean Air 12
Strategy, and as I said before, your suggestions in 13
terms of developing that strategy are a key element. 14

Some possible elements of a Clean 15
Air Strategy might be to adopt new standards; to limit 16
total emissions for an area, sometimes called an 17
airshed; or to develop or to provide new incentives for 18
new technology; and another alternative that receives a 19
lot of consideration is to provide financial incentives 20
for people to restrict their activity in terms of 21
emissions; and of course the perennial need for further 22
research so that we can understand the problem better. 23

Well that provides, in a way, a 24
rough overview of what we are talking about, what we are 25
thinking about in terms of a Clean Air Strategy. As I 26

said before, we haven't been terribly successful in 1
getting a wide audience to our meetings to date. I 2
might say that this group is larger than we have had, 3
and we appreciate everyone coming out on a stormy night, 4
but I think we can have some good discussion this 5
evening. 6

I believe we only have one person 7
that wants to make a submission, but there may be others 8
that do want to, and we will certainly accept them, and 9
after we have finished with the submissions, I think we 10
can have some dialogue and exchange some views, we can 11
probably pose some questions and see what your reactions 12
are to those particular questions. 13

So without further ado, let me 14
call upon the first person to make a presentation, and 15
it's John Sheehan. Is John present? 16

JOHN SHEEHAN: Yes, thank you. I wasn't exactly 17
sure what format this meeting would take place in, but I 18
will give it my best shot here anyway. There's been so 19
many things happening lately that I am limited, in time, 20
to be able to prepare. 21

This submission is not only on my 22
own behalf, but it's also going to be on behalf of 23
Friends of the Peace. 24

One point I would like to mention 25
that was brought up earlier about the poor turnout, I 26

wouldn't say this is particularly poor here, but as you 1
mentioned in other areas it might not be quite as good. 2
I don't think that it should be attributed necessarily 3
to public apathy. The public is quite concerned about 4
environmental issues and are becoming more 5
environmentally conscious all the time. 6

I think one of the problems is 7
that there is a vast amount of time involved in becoming 8
environmentally conscious and to have a specific 9
knowledge that you want to get up and address to a 10
hearing such as this. It's fairly difficult to, you 11
know, collect all the information and then feel 12
comfortable with presenting it to the public, but I 13
believe the public will support ways and methods of 14
conserving energy and protecting the environment. 15

Alternatives have been, like 16
energy alternatives that is, clean alternatives in terms 17
of methods of generating energy without creating 18
pollution and energy conservation techniques have been 19
well-known, and myself, I know at least 15 or 20 years 20
that there's been many different forms of alternative 21
energies that have been given support, but basically by 22
a small number of people who have taken the time to 23
really delve into the situation, but it's been fairly 24
unfortunate, I believe, that our governments really 25
haven't supported and haven't spent much time and effort 26

into developing, or helping to develop with the public. 1

To use an example, the nuclear 2
industry has received billions of dollars from all 3
across Canada, whereas I think the statistic 15 or 20 4
years ago was that it was less than 1 percent of the 5
Energy, Mines and Resources' budget was actually going 6
towards promoting alternatives or energy conservation. 7
So I think, myself, that was quite a significant mistake 8
on behalf of the federal governments. 9

Another point of energy 10
conservation. Amour Lovins, who is an alternative 11
energy expert and founded the Rocky Mountain Institute 12
in the United States, equated conservation costs to the 13
equivalent of a \$3 barrel of oil. Now we are looking 14
into all sorts of alternatives, and many of them are 15
much more expensive than the equivalent of a \$3 barrel 16
of oil, as oil today is much more expensive than that, 17
and had we taken the initiative 15 or 20 years ago, I 18
think we could have seen many savings to the 19
environment, and to our own economy for that matter, and 20
I believe there has to be a certain amount of pressure 21
placed on Energy, Mines and Resources by the public of 22
Canada and also by Alberta to support clean alternative 23
energy sources, but especially towards conservation. I 24
think that's where the key is. 25

Another quote that I have heard 26

is that North Americans can cut their energy consumption 1
by roughly 60 percent without affecting our lifestyle 2
currently, so that's a pretty significant amount. 3

I believe that Alberta has a very 4
important role to play. Though we have a vast supply of 5
fossil fuels, it's in our own best interests to conserve 6
and avoid not only the damaging effects from their 7
combustion, but for the long-term security, by having 8
these substances around and still available for future 9
generations as well, and especially also to consider the 10
fact that these substances will increase in value as 11
they become more scarce. So I think we have to take a 12
long-term approach to this, and not just the short-term 13
to reap the immediate economic benefits. 14

I think myself and many other 15
people would suggest that a significant portion of our 16
current royalties, being accrued from the export of 17
fossil fuels and possibly other non-renewable resources, 18
should be carefully utilized and invested in areas that 19
would support, promote and develop energy conservation 20
measures and clean energy alternatives. 21

A few points in looking at some 22
of the handouts that came with the Clean Air Strategy 23
package, I would just like to suggest in the residential 24
area, I think house design, landscaping, and possibly 25
the mention of solar water heaters and passive solar 26

housing could be of quite a benefit in terms of the
residential component involved in the Clean Air Strategy
that I didn't really notice in the brochures.

Also, I would like to reiterate
the point mentioned earlier about education. I believe
that it's critical to ensure that energy conservation is
given the priority necessary to protect the environment
and direct our society towards a more sustainable
future. The public who directly use about 15 percent of
Alberta's energy, and industry who consume roughly 85
percent, must understand why energy conservation and the
development of clean alternatives are necessary, and to
be involved in developing strategies to work towards
this objective. I believe the Alberta Government must
help educate and facilitate planning, as well as help
with the public and industry, to develop and implement
this type of a strategy and public education.

I worked for the office of Energy
Conservation for approximately nine months in 1978 to
help promote energy and resource conservation, and at
that time, the importance was recognized regarding
non-renewable energy depletion and the resulting
pollution that comes from the consumption and combustion
of fossil fuels. Energy conservation and alternative
energy sources were known at that time and being studied
by many of -- with many of the best examples coming from

the public in general.

In this particular project, we would go out and look at what the people, just on their own initiatives, were doing, and many people, you know, without much information from others, were just experimenting and doing things on their own and learning from that, and it was just sort of a word of mouth sort of a situation, and I found it very informative to be able to have that opportunity and to explore those types of things, whereas on the other hand I was looking at some of the other information -- I don't want to try to be critical of the government all the time -- but it was, I found the government, at that point in time, was more or less looking at more towards the megaprojects or larger-scale ways of developing alternatives that would make it very difficult for the public to access. So I think it's very important, as I mentioned earlier, that the government work together with the public in trying to solve these problems, as well as with industry.

Now, it's almost 15 years later from that point in time that I was speaking about earlier, and we are virtually no farther ahead, we are not significantly much farther ahead on these issues as we were then. Had something been done then, and the government taken a little more initiative to help the public, at that point in time we may have been able to

avoid going to war with Iraq today over the situation in
the Middle East.

Now I believe that our political
system, and politicians, have been unable, not
necessarily unwilling, to deal with the long-term issues
and strategies due to their own short-term political
interests. As everybody is aware, we have elections
every four or five years, or whatever, and I think
that's one of the problems with our system right now.
Our politicians are geared towards getting themselves
elected every four years, so consequently, there is not
much of an incentive for them to take a long-term
strategy towards developing things for the country that
are really necessary, and what happens is the first two
years they do all the very unpopular things, and then
the second two years they spend all our money on maybe
superfluous things that aren't really needed just to buy
votes and get themselves re-elected, when what we really
need is government, industry, and the public working
together to develop a long-term strategy on these
issues.

Now with the consequences of the
greenhouse effect and global warming under way, it may
be too late to prevent the potentially-devastating
consequences that may result. I hope that is not true.
But there really are no serious options left for the

long-term future of the biosphere as we know it other 1
than to immediately develop and implement strategies to 2
address these problems, with the co-operation of 3
everybody, and not partisan politics that collect power 4
in the hands of a very few people, will be necessary if 5
this plan is to succeed. 6

I would like to mention, at this 7
point in time, a few of the local concerns regarding air 8
quality issues. Actually, I had a question. 9

The Clean Air Strategy meetings 10
are related to the environment as they relate to energy. 11
I was just wondering about Clean Air Strategy as it 12
relates to non-energy sources, or pollutants from 13
non-energy-related issues. Is there a time frame, or 14
will the Clean Air Strategy address those concerns at 15
some point in the future? 16

MODERATOR MILLARD: Could anyone comment on that, 17
Susie or Bob, or -- 18

SUSIE WASHINGTON: My understanding is that the 19
issues with respect to global warming and acid 20
deposition, and certainly to a lesser extent smog, are 21
really primarily related to the energy industry in 22
Alberta, and that that is considered the first phase. 23

The second phase will deal with 24
other issues, such as air toxics and other kinds of air 25
quality problems related to other types of industry in 26

the province, but this was seen as a first phase, partly
in response to many of the international initiatives
that the Federal Government is undertaking at the
present time, but also in response to, I think, a
Provincial, or a unique situation in the province in
that we are the energy capital of Canada, and we have a
global responsibility and we have a provincial
responsibility. So a step at a time.

JOHN SHEEHAN: Right. I was just sort of
curious, because there is a number of concerns locally
about non-energy-related concerns.

SUSIE WASHINGTON: Exactly.

JOHN SHEEHAN: One of the things that I did want
to mention in regard to clean air in a local situation,
and it is energy-related to a certain extent, is with
regard to the hog fuel boiler that Diashawa operates
that generates power to provide to their plant, and in
the hog fuel boiler they burn sludge from the pulping
process to produce this energy.

The concern is that using the
sludge that's been bleached in their mill to provide
this energy requirement, there is a potential for the
emission of chlorinated organic substances as well as
other substances into the air, and that's a fairly
substantial concern for many people locally, and it's
never really been addressed. The questions that we have

asked our government, we haven't really heard any 1
responses. We have heard that these substances would be 2
monitored for, but to our knowledge there is no 3
intention of monitoring for chlorinated organic 4
substances that are airborne. I understand it's fairly 5
difficult to do that, but I know there is companies, 6
even in Edmonton, that can take samples to measure, even 7
in minute quantities, for substances such as dioxins and 8
furans. 9

One of the concerns with the 10
combustion and the incineration process, supposedly, 11
according to the E.I.A. of Diashawa, they state that 12
their incinerator will get to the temperature somewhere 13
in the vicinity of 800 to 900 degrees Celcius, and 14
consequently thoroughly combust all these chlorinated 15
compounds, but there is a few points that haven't really 16
been addressed. 17

One is when the mill shuts down 18
and the incinerator isn't working at full capacity and 19
they are venting the gases, are chlorinated organics 20
being emitted at that point in time? 21

The other concern is that if 22
there is a high water vapour throughput in their hog 23
fuel boiler, in other words if there is a lot of water 24
vapour coming off this process, would these chlorinated 25
substances be whisked out of the stack prior to the 26

proper retention time in the hog fuel boiler to combust
these materials.

And another point is even if you
are able to break down and incinerate these chlorinated
organic substances, you are never going to be able to
break down the chlorine atom short of a nuclear
reaction, which I don't think too many people would
support anyway, but one of the concerns with that is
that, since there is chlorine atoms going to be coming
from this process, what is -- after it leaves the stack
it recombines, the potential is there to recombine with
particulates and sulphur compounds and other substances,
and what is going to be the end result of these
substances. So that's another concern. We know that
chlorinated compounds are very toxic and carcinogenic,
bio-accumulate in the food chain, so we are hoping that
we are not breathing very many of these, if any of them,
locally. So that's a very important concern for us, and
that relates to this Clean Air Strategy, since energy is
being produced by the firing of the hog fuel boiler.

And I guess I would like to
reiterate the point that we think it's very important
and necessary that monitoring take place for these
substances because of the substantial health impacts of
the potential from these substances.

I would like to make mention to a

report or a document that the Alberta Medical 1
Association or I should say, excuse me, the American 2
Lung Association put out to back my point. This is in 3
relation to the recovery boiler. They state the 4
recovery boiler uses too much -- when it uses too: 5

"...much excess oxygen can produce sulfuric acid 6
aerosol. If chlorine wastes from the production 7
of chlorine dioxide mixed with black liquor prior 8
to burning in the recovery boiler, the recovery 9
boiler may have the potential to produce highly 10
toxic chlorinated dibenzo-dioxins and 11
dibenzo-furans." 12

So those were a couple of the substances that we were 13
concerned with here as well. 14

But having said that, I would 15
like to thank Alberta Environment and the people here 16
tonight for giving us the opportunity, and the members 17
of the public at large, the opportunity to find out and 18
become more informed about these situations. I think 19
it's something that's long overdue, and we appreciate 20
the opportunity to make a presentation, that is myself 21
on behalf of Friends of the Peace, and we hope that the 22
government will take our suggestions and work together 23
with public and industry to create a long-term strategy 24
that will help address the concerns in general with the 25
Clean Air Strategy. Thank you. 26

MODERATOR MILLARD: Thank you. Are there any other 1
submissions? Anyone like to make one? 2

CLAUS: Yeah, I have got a few words to 3
say concerning, like this whole thing is concerned about 4
clean air on this whole planet and not just on the local 5
area, not just in Canada or on the North American 6
continent, so we have had the issues of the local 7
facility doing certain environmental damages to our 8
direct living environment, but now we should look at the 9
fact that what this is using. 10

We are talking about CO/2 as 11
being one of the major greenhouse gases. Now, if we 12
look at the woods here in Northern Alberta or in B.C., 13
or if we go all the way across Canada, it's one of our 14
major resources as far as we call it, renewable 15
resources. 16

Now there is billions of tonnes 17
of trees out there made out of water and carbon that are 18
being turned over into pulp, into, in this case, pulp, 19
or in other cases oxygen, or just being knocked down in 20
order to clear more land for raising cattle, or whatever 21
mainly we do with it, so we are taking this carbon and 22
turning it into carbon dioxide, not thinking about how 23
long it's going to take this carbon dioxide to come back 24
down and turn into carbon in the form of a tree or 25
another plant again. 26

So on top of that, these trees 1
are being a major regulatory factor in the earth's 2
climate. Since you, you must know it too, it was not 3
shown in your diagram, to give everybody this 4
information, every year the CO/2 content of the 5
atmosphere goes up and down as the plants absorb a whole 6
lot of the carbon dioxide out of the atmosphere in order 7
to grow and then release it again as they decay over the 8
winter, and this process goes on and on. Now as we are 9
taking more of this biomass, active biomass, and turning 10
it into CO/2, we are lowering this regulatory factor, 11
and all we know is we are doing it. We don't have a 12
clue what kind of consequence it has. 13

Now you had your alternatives, 14
using less energy. If we would consider that within the 15
next 100 years we would only want to reach about 3 16
degrees of global warming, we would have to 17
theoretically, as far as scientists are concerned, about 18
2050, cut down by 90 percent of the emissions. In 19
general we are talking about our third of the public, 20
the third of the energy production, and the third of 21
other industry. In order to do this, we are going to 22
have a very hard time. 23

So what the government, as far as 24
I am concerned, should definitely do is not allow any 25
kind of production of any goods or energy if it's not up 26

to state-of-the-art equipment. I mean we are looking at
a Peace River pulp mill that is producing under
circumstances that should not even be allowed any more.
This pulp mill would have no chance of being legal in
Europe. If they tried to put that machine there, people
would raise more than -- they would raise hell.

We are talking about an
incineration plant in Swan Hills for toxic substances
that are just going to get incinerated and blown into
the atmosphere, but we don't know yet what they are
going to do.

I mean we consider ourselves the
Homo Sapiens, we should be able to think, so we should
think first before we do it, and we should have our
government representing ourselves in that direction,
that we should not allow anything that's not up to full
capacity, full efficiency rate as far as we are
concerned, with our so-called high technology.

Well those are a few things. I
have got more to say.

MODERATOR MILLARD: Thank you. What's your name,
please?

CLAUS: Claus, C-L-A-U-S.

MODERATOR MILLARD: Any other comments?

ROXANNE: Yeah, I would like to say
something. Okay. I would like to talk about energy,

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since this thing is about it, and in my idea there is, 1
there should be a conversion to something that wouldn't 2
create any pollution at all, and that thing exists and 3
it's been there for years and years, and I am still 4
surprised to see that nobody cares or not even talks 5
about it, and it's the using hydrogen. 6

When you put hydrogen in contact 7
with oxygen, it creates an explosion, and it's already 8
been there, there is lots of engines work like that, and 9
the only thing that comes out of the excess -- whatever, 10
you could use it to heat a house or make light, move 11
engines, whatever, it doesn't matter -- and the only 12
thing that comes out of the excess, that's water, 13
therefore that doesn't touch the environment in any way. 14
Okay. 15

You can create the friction, and 16
the thing moving going to still create some heat, but at 17
least in terms of toxic substances that would be 18
generated it would be pretty clean, it would stay there. 19

And I think we are really lacking 20
in this country because there is lots of way to do 21
hydrogen, and just a waste of electricity in dams 22
because they are built for the rush-hour demands, so at 23
night this electricity is wasted because they can't shut 24
the turbines, or whatever you call them, and it would be 25
very easy to make electrolyzers and store that hydrogen 26

when that electricity, it's not used, and then use that
hydrogen to maybe create electricity again by making a
vapour engine.

And there is lots of things that
can be done like that, and I don't know, I hope that
people who have money would, like who have more money
than they need, they have got to do something, because I
don't.

MODERATOR MILLARD: Thank you.

ROXANNE: Okay.

MODERATOR MILLARD: Your name, please?

ROXANNE: Roxanne.

MODERATOR MILLARD: Thank you. Any other that anyone
else wishes to make?

Any other comments anyone else
would like to make? Does anyone wish to simply talk
about some of the issues that we have been raising?

For example, we have talked about
what we mean by clean air, for example. What does
anyone, what do you think we should be using as a
definition of clean air as a standard?

JOHN SHEEHAN: That's pretty tough.

MODERATOR MILLARD: Maybe we will try another one
then.

JOHN SHEEHAN: Well, I don't know, I guess what
I, my impression would be something that doesn't have

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any immediate or long-term health effects on people, 1
animals, or the natural environment, I suppose, just 2
sort of as a -- 3

MODERATOR MILLARD: And you include the long-term in 4
that? 5

JOHN SHEEHAN: Yes, the long-term, definitely, 6
immediate and long-term. 7

MODERATOR MILLARD: Yes. 8

JOHN SHEEHAN: I did have a question, though, 9
relating to your previous presentation. You were 10
mentioning about acid rain. Do you know what the pH of 11
normal or non-acidified rainwater would be normally? 12

MODERATOR MILLARD: I have seen the numbers, but I am 13
sure somebody from Environment would be better. 14

SUSIE WASHINGTON: We have got a fact sheet. 15

MODERATOR MILLARD: Good. What is it, 5.4? 16

JOHN SHEEHAN: I know 7 is neutral, but I didn't 17
know what the pH of rainwater was, or should be 18
normally. 19

SUSIE WASHINGTON: 7. 20

MODERATOR MILLARD: 7? 21

JOHN SHEEHAN: 7? Okay. The reason why I 22
mentioned that is I was watching a newscast and, or I 23
should say a weather report on some channel, cable 24
channel from somewhere or other, and it was kind of 25
interesting because they gave the acidity of the 26

rainwater with their weather forecast, something that I 1
am not really familiar with, and this was in Ontario in 2
Eastern Canada, and a few points in Central Ontario the 3
acid was ranging, or the pH of the rain was ranging from 4
4.2 to 4.6, and then there was a place in I think, I 5
believe in Nova Scotia, where the pH was actually 3.2 of 6
the rainfall. Now when you get a pH that low and that 7
acidic, that's a fairly scary scenario to be depositing 8
in the environment and on people. 9

I am just trying to get some 10
perspective on that. 11

MODERATOR MILLARD: Yes, yes. Those fact sheets are 12
really very good. They are well worth reading. I would 13
commend them. 14

BOB MITCHELL: Excuse me, Vern? 15

MODERATOR MILLARD: Yes? 16

BOB MITCHELL: On the back of the fact sheets 17
there are a list of other information that you can call 18
the Department and we will mail to you. You can phone 19
or write us, and we will send out anything that you need 20
on -- that are listed there. 21

MODERATOR MILLARD: Did everyone hear Bob when he 22
said that? Why don't you say it again, Bob, just so 23
people can -- 24

BOB MITCHELL: Okay. On the back of all of the 25
blue fact sheets are lists of supplementary information 26

that you can call the Department and we will send out to 1
you. There is an awful lot more on things like SO₂ 2
emissions, CO₂ inventory studies, CO₂ reduction study, 3
a nitrogen oxide inventory study, things like that. If 4
you are interested, they are good reading. 5

JOHN SHEEHAN: If I can make one more comment, I 6
guess normal rain, neutral is 7 but normal rain is 7
actually 5.6, and just to put that into perspective, 8
orange juice is 4 and vinegar is 3, so the rain that was 9
falling in Nova Scotia yesterday or a couple days ago 10
was very close to being the same acidity as vinegar, and 11
what was falling in Ontario was just a little less 12
acidic than orange juice, just to give you some idea. 13

MODERATOR MILLARD: Let me try another question. How 14
many of those in attendance this evening tend to think 15
that we have a future problem with respect to global 16
warming or what I call the greenhouse effect? 17

ROXANNE: I couldn't hear the question? 18

MODERATOR MILLARD: Sorry. How many of those in 19
attendance tonight believe that we have a problem, or a 20
future problem, with respect to global warming or 21
so-called greenhouse effect? So I guess that's a pretty 22
universal recognition, and quite frankly we weren't -- 23
when we had small attendance, we weren't sure whether, 24
if one of the factors was that people didn't think there 25
was a problem. 26

Well, recognizing that there is 1

agreement that there is a problem how, what kind of 2

actions would you think should be taken to reduce 3

emissions to avoid the warming of the atmosphere? Do 4

you have some specific thoughts that you might put 5

forward? Yes? 6

ROXANNE: Yeah. I would say to encourage 7

the people to save in emissions, like to encourage them 8

to do, like instead of being one person in the car to be 9

more people and to, for to take easier ways to reduce 10

first. Like technology changes take a long time and 11

lots of money, but there is easy things that anybody 12

could do, that if everybody would do, it would go, it 13

would make a big difference already. 14

MODERATOR MILLARD: Would you like to see a list of 15

such things so that you could review them and implement 16

them? 17

ROXANNE: I think television, the 18

television media are using, right now there is 90 19

percent of bullshit and brainwash and there is a little 20

bit of information, and it should be reversed. There 21

should be 90 percent of information and 10 percent of 22

bullshit. 23

And that's really bad, like 24

pisses me off, because the situation, it's really like 25

extreme, and you can't go back, so how come that there 26

is -- you can, because television is the main thing that 1
it's everywhere with computers, and those two things 2
should be there to help, not to promote more waste and 3
more ignorance, and I don't know what can be done for 4
that, like because it's going to take money to have one 5
station completely devoted to make things go better. 6

CLAUS: Well you can, for example, start 7
with simple things, like start with the idea of instead 8
of giving a rebate for using lots of power, make it more 9
expensive. 10

If somebody, instead of using 100 11
kilowatt-hours, he has a big outfit, well he's charging 12
more money, charge him double. Why not? The guy is 13
going to think about it twice, about using all this 14
power, and he's going to think about a heat exchanger 15
and saving him an extra 1,000 kilowatt-hours a day on 16
the heat of that room or this and that. He might think 17
about it twice. You have to charge the people that are 18
in charge of the facilities, the people that own it, the 19
people that have the money to their leisure. 20

I mean we are being given one of 21
the biggest countries in this world to our leisure. We 22
are only 20 million people, which is a very small amount 23
of the population on this planet, so we have to think of 24
responsibility. We can't just think in terms of a new 25
VCR or a new car. We have to think in terms of not 26

taking this and wasting it, because after all, we have 1
rented it from our grandchildren, and every one of you, 2
like your grandchildren are already there, mine are not, 3
that's the only difference, but you have rented it from 4
my children and I have rented it from my grandchildren. 5

So there is a lot of things. You 6
could look at it simple. Put transportation into 7
employer's hands so people don't have to get to work. 8
The employer has X amount of employees, he gets one 9
vehicle and drives them all around, well make him pay 10
them for the time. Simple things like that. Instead of 11
moving 20 vehicles to one shop you move one vehicle from 12
that shop and make him cruise once around. There you 13
go. Easy things. That way you are avoiding. 14

Like Alberta is emitting lots of 15
CO₂, but look at the conditions that there are in this 16
province. You end up, in the wintertime, using a lot 17
more fuel than you do in the summertime, so make things 18
more efficient, make things a little bit better for 19
people. Give them -- like since we have a very 20
pathologic public in Alberta in general, make it very 21
easy for them, give them a quick cash thing, you know. 22
That's what people are going to go for. 23

You want to share the ride to 24
work, well it's an instant \$100 off your income tax. 25
Simple. If you can prove that you rode with your 26

neighbour, you get \$100 off at the end of the year, 1
really an easy, simple thing, but of course it means 2
cutting out long and complicated ways and not having 3
everything go in a three-year way, because by then it 4
has changed twice and it is outdated. 5

JAN DARLING: I think what a lot of people feel 6
is that I am one person, you know, and whatever I do is 7
not really going to impact too much on the environment, 8
it's got to be everyone, and I think what we might look 9
at is, in terms of getting new ideas, is looking at the 10
younger kids who are definitely right into this idea of 11
the environment, they are getting it at school, they are 12
getting it from their parents, they are, you know, they 13
have been raised with it this generation, and perhaps 14
some wonderful ideas could be generated by the schools 15
taking up the challenge to, for the science fairs and 16
creating their science fairs around this whole idea, and 17
for submission, in terms of thinking of submissions that 18
could be made, then, from these fairs to your workshop 19
that's going to happen in the spring. They are full of 20
good ideas. 21

MODERATOR MILLARD: Yes. 22

CLAUS: Well the simple idea of using the 23
media, as she mentioned, instead of using a lot of 24
commercial time, our government should represent us in a 25
way that they should say, well, the product that's 26

obviously not of any use to the environment and that is
definitely doing X and X amount of damage on its way of
being produced should at least not be able to be
promoted in our public air time, and instead of that we
should use this air time to put you guys on the show.

Like, just tell people, because
that's what people need. The TV in Canada, especially
in Northern Alberta, Alberta in general, is a major
source of information, so use it in a positive way.

Instead of telling people to use
four-ply extra fluffy toilet paper, or to buy a car
that's got a turbocharger, well, 6.6 seconds up to 100
kilometers, like who needs it. That's my speed limit,
and I don't need 6.6 seconds, I can take 15 seconds.
Everybody can do that. You know, just take a little
more time in the path too.

ROXANNE: Like most of the planes, like it
would be nice if -- same for the planes. How many times
you see a plane, it's half empty? I mean if a plane was
full, it wouldn't burn that much more fuel than if it
was completely empty, so things like that would make big
changes, and it would be cheaper for the plane companies
too. I mean I don't know.

CLAUS: I think, in general, the
inefficiency of our society, the use of a styrofoam cup,
is ridiculous. We are looking at the

fluorocarbohydrides that are being produced. For this 1
styrofoam cup, that's what's being used to fluff it up. 2
For the package for the hamburger at McDonald's, it's 3
the same deal. It's ridiculous. 4

Our government should simply 5
prohibit the kind of use of packages like that. I mean 6
those fluorocarbohydrides take 15 years to rise into the 7
stratosphere. The ozone layer hole that we have had 8
developing since 1979 has only -- like this is 9
15-year-old gases that are doing the damage. The things 10
that are out there today, they still take another 15 11
years to go up there, and since then we have produced 12
production a ways over 1,000 percent. 13

Like if we are lucky, what we are 14
facing here, we have still got 15 years of the ozone 15
layer opening if we stop instant now, but North American 16
car manufacturers are not about to use water as a paint 17
thinner like European ones do, they still use the old 18
paint thinner. Those are thousands and thousands of 19
tonnes of this thing thrown out there, and for the next 20
15 years on their way up there, and our government is 21
allowing it, all these little things. 22

ROXANNE: The standards are -- I mean it 23
causes -- it's cheaper, sometimes, to pay a fine if you 24
are polluting in this country than it would be to 25
convert what's wrong. Instead, if it was the reverse, 26

they would -- it would be cheaper for the company to 1
convert to be clean instead of paying the fine. 2

ELIZABETH GARDNER: I think you have to lower your educational expectations.

You are talking about the future
 being our children and grandchildren, but you are
 talking about conservation and concerns that are beyond
 their understanding, that in the job of education you
 have got to get things to the level that they can deal
 with; collecting a newspaper every day and keeping it in
 your classroom. By the end of the year you have moved
 that stack of paper I don't know how many times, but try
 to get the idea that all that paper adds up to X number
 of trees, so how many forests are we talking about is
 where we have to start to aim our goals for educating.

I don't know if, in curriculum, 16
you have any input, but in the Grade 6 Social Studies 17
they are talking, now, Canadian Government, and one of 18
the things that they need to encourage there is to have 19
questions such as how does this question affect the 20
environment as far as the Canadian government is 21
concerned, the people and us, and those kinds of things 22
have to really be shot in the arm, and they are not. 23

JAN DARLING: I think at this point, too, a lot of issues deal with big business. We know that styrofoam cups are environmentally unsafe, but somewhere

there is a company that makes those and government is 1
not a dictatorship, it's not going to say, unless you 2
can absolutely prove right down that that's going to be 3
poisonous and somebody is going to die tomorrow, you are 4
not going to get a government law against providing 5
something like that. It's not instantaneous like that. 6

Same with diapers, you know. I 7
mean that's big business, and it's dollars and cents, 8
and perhaps government agencies just have to crack down 9
and get a little tougher for the future. 10

ROXANNE: I would like to, this is an idea 11
of mine I would really like to see one day happen, is if 12
you take human power as energy. I would like, really, 13
to see programs like you take inmates, make them tree 14
plant, and they would be, like they would be paid the 15
same price any tree planter would be paid but not get 16
the money right away so that when they come out they 17
have been planting trees and they get a bit of money to 18
start in life with something instead of being nothing. 19
And there is so much power there. Those people are fed 20
and everything, they are there, they are just sleeping 21
and getting sick, and why couldn't they be put in the 22
bush and tree plant and make oxygen instead of sitting 23
there and just getting wasted, like. 24

MODERATOR MILLARD: Other ideas? Does anyone have 25
anything further? 26

JOE STEPANIUK: Vern, I would like to mention 1
something. 2
This lady was talking about 3
education here. We have got probably eight booths 4
around here. Not a single school class came through. 5
This is an ideal place to learn Clean Air Strategy, yet 6
we did not have our educators bring one class through 7
here, and that's really disappointing. 8
I donated my personal time and my 9
company's time to come and help explain our position, 10
but we did not have any students to listen. 11
JOHN SHEEHAN: Maybe there is a greater need for 12
promotion of this type of an activity better. 13
JAN DARLING: Certainly, it's not the teachers' 14
fault. It's, you know, one teacher might be interested 15
in doing this, but if it doesn't fit in with your day's 16
agenda or your principal can't free up a bus to get the 17
kids down here, you know, I mean there is probably 12 to 18
15 different reasons -- well maybe not that many -- 19
there is five or six reasons that the kids, you know, 20
didn't come. 21
I think someone said better 22
promotion might be the answer so that this can be worked 23
in. I agree with you, I really do. 24
JOE STEPANIUK: How far are we from the nearest 25
school, from here? 26

ELIZABETH GARDNER: Walking distance. Quarter of a 1
mile. 2

JOE STEPANIUK: We really, as parents, did not 3
make the effort to tell our educators to say we have got 4
a problem, let's go correct it, send the kids. Where do 5
they learn, this is the best place to learn. Industry 6
is here, everybody is here basically represented, and we 7
had no students. 8

ELIZABETH GARDNER: Perhaps it could have been better 9
advertised. I had to phone one place to find out in 10
which of three locations it might be. 11

CLAUS: Well if you consider, we are not 12
here right now to teach our kids, right now we are here 13
to make suggestions. 14

We are spending a lot of 15
government money doing this. I'm making the suggestion, 16
I mean this evening, tonight is costing a lot of money 17
out of national taxpayers' pockets, and we should make 18
it worth it, and I don't think it would be the right 19
point in time tonight on having a class of students 20
here, even though they might have really interesting 21
suggestions to our discussion, but I think it would 22
be... 23

Why not make it one department at 24
school? Like we teach our kids physics, we teach our 25
kids chemistry, we teach them English, French. Why not 26

teach them environment six hours a week? Therefore we 1
would be able to catch up really quick. All it would 2
take is, from Grade 1 on, you give them environment 3
lessons. You teach them what it's all about to have a 4
home compost, little things like that, you know, teach 5
the kids right in school, because we will have to get it 6
to them somehow. We will have to get this information 7
in their heads. Besides the fact that you can just burn 8
it, we have to let them know what happens after you burn 9
it. 10

So the education is not to take 11
place now, the education is not to take place in that 12
way even on a voluntary basis. I mean our kids don't 13
have the choice whether they want to learn physics or 14
not, they have to be there, and that's the way I would 15
look at it, is I would teach them about the environment. 16
Whether they want or not, as long as they are in school, 17
they are going to have to listen to it. 18

JOE STEPANIUK: To legislate things upon people 19
is wrong, it's a wrong way of doing business, a wrong 20
way of doing anything. We are freedom of choice in this 21
country. 22

CLAUS: Oh yeah, but I mean -- 23

JOE STEPANIUK: You start with your children. 24

CLAUSE: Oh yeah, but I mean like I said, 25
the kids have to learn about physics. 26

Vol 3 - 176 General dialogue
Participants
Tuesday, November 13th, 1990

JOE STEPANIUK: We just can't arbitrarily say we 1
did away with McDonald's styrofoam cups. Even though we 2
dislike them, we as consumers should have the right to 3
say "no", not legislation. 4

CLAUS: No, because the average consumer 5
does not have, he does not have the kind of information. 6
The average consumer does not know that it takes 7
fluorocarbohydrites to blow up a styrofoam cup. The 8
average consumer goes into a store and he sees, wow, 25 9
cups for \$1.25, right on, I'll buy it. 10
Instead of paying more money for 11
something like -- 12

JOE STEPANIUK: Our average consumer is not that 13
ignorant. He makes the logical choice. He wants to go 14
to McDonalds because it's cheaper. 15

CLAUS: Let's say you take an average 16
teenager out of Peace River who dropped out of 17
highschool at Grade 9 and is now 16 years old with two 18
children. Do you really expect this child to have the 19
necessary schooling to be able to tell that this 20
styrofoam cup, that is really cheap and really 21
convenient at the time and doing the job just perfect, 22
is actually something really poisonous to the 23
environment? Like, you should not leave the choice up 24
to a person who is unqualified to make the choice. We, 25
as the qualified people, have to make this choice. 26

JOE STEPANIUK: Then you are playing God. You 1
can't do that. He has to be allowed his choice. 2

CLAUS: We have to leave the option, like 3
in this case we can count the option out. They can make 4
a paper cup that can do the same job. 5

ROXANNE: There is not enough time to get 6
everybody qualified to do the job, that's the problem, 7
to do the choice. If everybody had to know exactly what 8
was happening to do the choice, it would take so many 9
years that by then the choice, we wouldn't need it any 10
more, it would be already too late. 11

There is too many people, like 12
just the third-world countries are going to start 13
getting the old cars that these countries don't want any 14
more that pollute five times as much as, or use five 15
times as much gas, so now people are getting more 16
conscious in the industrialized countries and they are 17
trying to do better, but meanwhile all these third-world 18
countries, they are getting to get their car and 19
everything, and even here we are going to smog, the 20
emissions, over there they are just making mega, they 21
are starting to do more. 22

So like there is a really -- it 23
has to be something that's going to come from all over 24
the world, an agreement that -- I don't know how it's 25
going to go, but it's scary. 26

MODERATOR MILLARD: That's one of the real 1
challenges, isn't it? 2

CLAUS: We can take like a real simple 3
example for choices. 4

I mean nobody in this room has 5
been asked, and I am positive about it, whether Canada 6
should go to war or not, or at least has not had any 7
decisive power on that particular decision. This 8
decision has been made by a politician without asking 9
this particular person, so we can make the decision on 10
saying the styrofoam cup produces fluorocarbohydrites, 11
it produces these things, we cannot have these things, 12
we just cannot have them if we want to be responsible 13
citizens of this planet, so we don't make them. 14

We have to recognize these 15
factors, we have to look at the products that we use in 16
life, because the way we live life has not been the 17
traditional way of our society of living, like we have 18
not used plastics for a very long time. 19

And the amount of use, like we 20
are looking at, every four years, a gross product of 21
goods that's as much as from the beginning of mankind to 22
1950, so every four years we are punching out more 23
stuff, the same amount as from the beginning of 24
industrialization until 1950. That's including two 25
world wars. This is general turnover of goods, and with 26

the goods, of course, the energy. 1

And we were looking at, you were 2
saying, a future problem, the global warming is already 3
being a problem if you look in the last year; five 4
hurricanes in Europe being caused by the cold air 5
reaching back up further north and producing the tunnel 6
where those five hurricanes got spun off one after 7
another. That's only thanks to the fact that 15 percent 8
of the ice on the north polar cap has melted since 1976. 9

We don't know how many trees 10
Europe is going to lose now. Last year they lost 10 11
percent in one winter. Now who is to be blamed for 12
this? Who is to pay for all these roofs that got 13
destroyed? Who is, if you reach further back you 14
always -- so since you can't pay back, like you cannot 15
say well, you guys 20 years ago used up this power and 16
caused this water to melt so I want you to pay for my 17
new roof now, you cannot do that. But you can sit down 18
and say well, before I put this out there I should 19
better think whether, in 20 years, it might destroy 20
somebody's house, because it just might, and that's what 21
we should have a government for, in order to look into 22
these issues and get qualified people to make these 23
choices. 24

ROXANNE: Also a bigger question, what 25
could be done with the people who obviously are going to 26

have to lose their jobs because, I mean, half of what's 1
in the markets, it's, I am sorry to say, totally, like 2
nobody really needed it. It's not things that we really 3
need in our lives. There is so many things that promote 4
sickness, and they are just a waste, so much wrapping 5
and everything, that you would wipe them completely out 6
of the market, nobody would suffer. Contrary, everybody 7
would feel better. Right? 8

And all these things have to 9
stop, but then there is going to be so many people 10
without the work, so it takes a really big operation of 11
the country to make these people stay alive. I mean 12
they are going to have to lose their jobs, and no matter 13
what, it's going to happen eventually, because when it's 14
going to get bad enough conditions people are going to 15
stop buying these products because they are going to 16
know, even if it's too late, that it's because of these 17
things, stop buying them, and all these people are going 18
to lose their jobs anyway, but it's going to be an even 19
harder time, so there should be something done so that 20
that change happens under control instead of completely 21
out of control. 22

MODERATOR MILLARD: Are there any other points of 23
view? 24

Well if not, let me say on behalf 25
of all of us involved, thank you very much for coming 26

out. We appreciate your comments and your participation 1
and we will try and keep you informed about what is 2
going on. Thanks again. 3

(Meeting adjourned at 8:35 p.m., Tuesday, November 13th, 1990) 4

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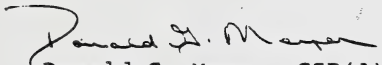
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Transcript of Proceedings

(Meeting commenced at 7:05 p.m., Friday, November 16th, 1990)

MODERATOR MILLARD: Can we start the meeting, please,
ladies and gentlemen.

Well, let me say welcome to those
attending this evening session. This is the fourth in a
series of regional meetings. Last week, we were in
Bonnyville and Fort McMurray. Earlier this week, we
were in Peace River, and then, of course, tonight in
Edmonton. My name is Vern Millard. I've been asked to
moderate these meetings.

The purpose of the meeting is to
get the views of citizens of Alberta from all different
walks of life with respect to the question of the Clean
Air Strategy. I have also been asked to make some
introductory remarks, and in order to do that, I have
reviewed the material that has been put together for the
Clean Air Strategy, which, I must say, I found very
helpful and interesting, and I would commend you for
your reading. This is just a brief summary of the
information that is in those fact sheets that have been
prepared by the people working on the Clean Air
Strategy.

Well, first of all, what is the
Clean Air Strategy? And it really stems from the fact
that our planet is becoming increasingly subject to

problems. There is a growing consensus by the
scientific community that emissions to the atmosphere
must be reduced.

The Clean Air Strategy encourages
public discussion. The Clean Air Strategy is designed
to, first of all, identify most important issues, the
most important issues, to develop practical approaches,
to resolve the problems of emissions, and to recommend
policies and programs to the Government.

It is a four-stage strategy. The
first stage occurred in September of this year when a
group of people that are involved in this kind of work,
plus public interest groups, got together to discuss
issues relating to the question of clean air, and that
workshop identified a series of major issues.

The second stage are these eight
regional meetings that are designed to give public
citizens an opportunity to express their views.

The third stage will be another
workshop that will take place in the spring of next year
which will incorporate the views that have been
expressed at the regional meetings and consider other
issues that have evolved.

And then, finally, there will be
a report prepared, which will go to the Government,
primarily, the two main ministers involved in this, the

Minister of Energy and the Minister of Environment. 1

Now, what are the major problems? 2

Before commenting on the three basic problems that 3

exist, in general, one can say that continuing research 4

is showing that there are major strains on our planet. 5

For example, in November of this year, there was a 6

conference in Geneva which 700 scientists attended to 7

consider the question of global warming, and they came 8

out with recommendations that suggested major reductions 9

in emissions to the atmosphere. 10

Now, the greenhouse effect is one 11

of the major issues that is evident in terms of this 12

whole question of developing a clean air strategy. It's 13

caused by carbon dioxide and other gases being emitted 14

to the atmosphere. The gases trap energy radiated from 15

the earth. Fossil fuels and water are the major 16

contributors, and emissions occur in both the production 17

of energy resources and also in their use. 18

This is a diagram that 19

illustrates what does take place. There's naturally 20

some emission to the atmosphere of gases and some 21

radiation back to earth. As those gases build up, as 22

they appear to have been doing over the last few 23

decades, then the amount of heat that is radiated back 24

to the earth increases; hence the problem. Fossil fuels 25

are a major source. Oil, gas and water really create 26

the issue and -- well, I think we'll go on to the next
slide.

The second problem is acid
deposition or so-called acid rain. The question has
received a good deal of publicity over the last decade
or so. We have all heard about Eastern Canada and
Northeastern United States. We have heard about the
situation in Alberta with emissions from sour gas plants
and coal-fired plants and oil sands plants. The source
of acid rain is sulphur oxides and nitrogen oxides being
emitted to the atmosphere. And, of course, nitrogen
oxides stem from industrial operations and from the use
of automobiles, which we all indulge in.

Smog is a third major factor.
It's not as big a factor in Alberta, but it has received
a good deal of publicity in other areas. Nitrogen
oxides are a major contributor. It appears in some
degree in Calgary and Edmonton under certain atmospheric
conditions.

What is being done about this
situation? And we recognize it's a global situation.
So action is being taken on an international basis.
There was an agreement, an international agreement, on
the reduction of sulphur oxides in 1985. There was
another agreement on reduction of nitrogen oxides in
1988. Carbon dioxide reduction is in the process of

being considered at the present time. And then, of 1
course, research is a major factor in terms of 2
understanding the problem to a better degree. 3

How does all of this affect 4
Alberta? Well, because the emissions to the atmosphere 5
are -- or because of emissions from fossil fuels are a 6
major factor, it is important to recognize that Alberta 7
is a major source of fossil fuels. On the Canadian 8
scene, we produce about 83 percent of the gas produced 9
in Canada, about 80 percent of the oil and 44 percent of 10
the coal. Alberta's share of the emissions in Canada 11
are 15 percent of sulphur dioxide, 23 percent or 22 12
percent of nitrogen dioxide, and about the same for 13
carbon dioxide. Indeed, we have the highest per capita 14
emission of both nitrogen dioxide and carbon dioxide in 15
Canada. 16

We also have to recognize, 17
though, that 75 percent of Alberta's oil and gas 18
resources that are produced are sold in markets outside 19
the province. Therefore, one might argue that we are 20
contributing to the atmosphere the gases that relate to 21
the development or the production of those resources but 22
it's really on behalf of other people, of other 23
consumers, in either other parts of Canada or in the 24
United States. 25

Canada's share of the world CO/2 26

emissions is 2 percent, and if you relate that to 1
Alberta's share of Canada, it leaves something like 2
about half of 1 percent of Canada's emissions -- I mean 3
of the world's emissions of CO₂ emanate from Canada. 4

We have to remember the 5
importance of fossil fuels in Canada -- or in Alberta. 6
The production of fossil fuels in 1989 represented a 7
total value to the economy of \$15.5 billion. 2.4 8
billion went to the Provincial Government in revenues, 9
which represented 24 percent of the Provincial 10
Government total revenues for that period. The 11
industries employ about a quarter of a million people 12
directly and indirectly. 13

Now, I hope that one of the 14
factors that's come home is that we are all involved in 15
this process. For example, in terms of CO₂ and NO_x, 16
about one-third of the emissions arise from the 17
production of fossil fuels, another third arises from 18
energy development in general, and then the remaining 19
one-third stems from the actions of you and I when we 20
drive our cars, when we eat at our homes, etcetera, when 21
we use energy. 22

The kind of fundamental question 23
that appears simple on the surface but is actually 24
somewhat more complicated is what do we really mean by 25
"clean air", "clean air" in the so-called Clean Air 26

Strategy? A simple definition is that it would mean air 1
that doesn't have contaminants in it that will cause 2
health problems for people or vegetation problems or 3
problems for animals. But that really doesn't allow for 4
the long-term effect of some of these issues like global 5
warming that we were talking about previously. 6

For example, if one assumed that 7
the air that we are breathing in Alberta today is 8
clean -- and I know there might be some people who 9
couldn't quite agree with that, but just for the purpose 10
of this, let's assume that -- that doesn't mean that we 11
don't really have a problem, because the emissions that 12
are taking place, even with the production of clean air, 13
still result in emissions to the atmosphere that can 14
lead to this global warming and create the problems that 15
stem from it over the long term, maybe two or three or 16
four decades from now. Therefore, in terms of dealing 17
with this issue, we must still reduce emissions, even 18
though we have clean air, to avoid long-term global 19
impacts. That's a main feature of understanding this 20
particular problem. 21

Now, how can we reduce emissions? 22
Well, there are really four basic alternatives. One is 23
to reduce the production of energy. We could stop 24
producing our oil sands reserves or vegetable oil or 25
gas. Or we could use less energy, all of us. Or we 26

could use the energy that we do require more 1
efficiently. It goes further when you have less 2
emissions. Or we could convert to non-polluting energy 3
sources, such as solar or wind damming. 4

Then we come into the question of 5
how can we as individuals reduce emissions? And that, 6
of course, is the basic reason for these regional 7
sessions. We want to get your suggestions and ideas and 8
comments. Education certainly is a major factor, and 9
that raises the question of how do we create that 10
education. We have found, incidentally, I might say, 11
that in the regional meetings that we have held, they 12
really haven't been very well attended. This doesn't 13
seem to be a major issue on the minds of the Alberta 14
public. 15

How do we become convinced that 16
we have to -- that this is a real problem and we have to 17
change our lifestyles? That's another major, major 18
question. 19

Now, the next issue is what 20
policies and programs are required for an effective 21
clean air strategy? Again, your suggestions are sought. 22

Some ideas that are mentioned 23
here simply to promote consideration are we could 24
establish new standards. We could limit total emissions 25
in a particular area, some type of probably an airshed 26

cap. We can provide incentives to develop new 1
technology that would lead to more efficient use. We 2
can change current financial incentives to -- so that -- 3
some people might call it a more level playing field. 4
And we can expand our research. And there are other 5
suggestions that are certainly there and are not 6
referred to here. 7

The important point is that, as I 8
said before, we're all involved in this process 9
together, and so we really need to find answers on a 10
consensus basis. And we are looking for your ideas. 11

So, without further ado, I will 12
proceed to call upon the people who made submissions and 13
wish to speak to this matter. 14

Maybe the process we can follow, 15
if this is satisfactory, is to -- maybe the person 16
that's making the presentation, this microphone that you 17
can just use as you see fit. 18

ROGER SILCOX: I guess that I'm the first guy, 19
so -- 20

MODERATOR MILLARD: Good. And this is Roger Silcox? 21

ROGER SILCOX: Yes. Yeah, my name is Roger 22
Silcox, and I'm the first guy up here, so everybody else 23
can practice and get their talk changed around so that 24
they can talk a lot better than I do. I've got to use 25
this. 26

Okay, my name is Roger Silcox, 1
and I am here basically as a citizen and sort of 2
small-time entrepreneur, and I'm also a part-time 3
consultant with the Society of Automotive Engineers, 4
helping the fourth-year mechanical engineering students 5
with their project card, their miles-per-gallon card 6
that the universities compete all across the nation with 7
on the building and whatever. I'm currently working 8
with them right now in the use of synthetic lubricants. 9

Now, I'm pretty sure that most of 10
you people don't even know what synthetic lubricants 11
are. First of all, it has nothing to do with Syncrude 12
Alberta. Syncrude is just basically the same old crude 13
that has been synthetically removed from sand, so we're 14
still back to square one. 15

Now, synthetic motor oils and how 16
they relate to cleaner air: Most of you people, like I 17
say, probably have never even seen a can of synthetic 18
motor oil. It's been around for about 20 years in the 19
United States and parts of Europe, but because of its 20
exorbitant price -- it was about \$11 a litre back in 21
1975; it has, of course, now come down in price and is 22
more competitive -- but because of the expense, it was 23
in a situation where people weren't using it very much, 24
mainly because you could get oil for 99 cents, pump it 25
out every 3,000 kilometers, and everybody is real happy. 26

We're now moving into a situation 1
in life where we can't do that. And I just want to give 2
you just a brief outline of what a synthetic is compared 3
to -- I thought it was upside down -- what it is 4
compared to conventional oil. Basically, it's not so 5
much what's in synthetic oil but it's what's left out. 6
And in conventional oils, you basically have a basic 7
hodgepodge of various hydrocarbons, waxes, varnishes, 8
sulphurs and other kinds of light and heavy materials. 9
All these materials that are in conventional oil have 10
various rates that they evaporate at, that is, they boil 11
off. Some of the rates are so low that they're down in 12
the area of well below the boiling point of water. 13

So, consequently, what I'm 14
leading up to is the obvious situation where, as you 15
drive, you are basically polluting the environment on a 16
very large scale with all of these additives and extra 17
hydrocarbons, varnishes, sulphur, waxes, etcetera, 18
etcetera. And that's part of the reason why motor oils 19
wear out; a lot of this stuff just disappears. 20

A synthetic, on the other hand, 21
is made up of molecules that have been man-made, 22
man-constructed, and they're a longer-chain molecule, 23
which is much more stable and has a heat resistance 24
factor of anywhere from two and a half to three times 25
what regular motor oil has. 26

Now, how can this all relate to 1
cleaner air? Well, the basic premise has already been 2
realized by the Europeans. In Europe right now, any 3
10-40 oil that loses 13 percent of its weight or more 4
during their volatility tests fails to meet the C.C.M.C. 5
standards. The C.C.M.C is the Commonwealth Consortium 6
of Manufacturing Countries. It's basically like the 7
S.A.E. or the A.P.I., which is the American Petroleum 8
Institute in the United States that sets the standard 9
for emissions on oil. 10

Now, where that ties in to us 11
here: Europe has seen fit to set a 13 percent standard 12
for their oil products. This is from a test, a NOack 13
Volatility Test, I got out of an American magazine from 14
Amsoil U.S.A., and it's been sanctioned by the S.A.E. 15
This shows basically certain popular brands of oils that 16
are on sale right now that people have to use in this 17
province and across North America, and there doesn't 18
seem to be any particular standard of evaporation or 19
volatility. As you can see here, many of the oils lose 20
anywhere from 20 percent to 25 percent of their weight 21
by volume. 22

Now, I don't know how many of you 23
guys can guess how much you lose with synthetic oils. 24
Half maybe? Maybe more? How about 6 percent, maybe 8 25
percent. And where does all this oil go, this 24, 23 26

and 22 percent? It's going out the tail pipe. A lot of 1
times when you check your oil level and you say, I'm 2
down in oil, you're not down in oil at all, you're just 3
down in all the additives that the oil companies have 4
been jamming into the oil just to sort of help bring it 5
up to a certain level at the time that the oil is new 6
just to get it out the door. By the time the oil is at 7
the end of its life, which is usually around the 3,000 8
kilometer level, the oil is no longer at that standard. 9
Plus you're losing a lot out the pipe. 10

What this means is, with a 11
22 percent loss, you're losing one liter in five, 12
whereas with a comparable synthetic, doing nothing else 13
basically to an engine, you're only losing one-third of 14
a litre out of five. Now, if you extrapolate this kind 15
of difference, this two-thirds difference, over hundreds 16
and thousands of motor vehicles in Alberta and in 17
Canada, you can see that it means an awful lot as far as 18
emissions go. 19

Now, let's touch for a moment on 20
other features of synthetics, because some of them are 21
quite startling to the average person. Synthetic oils, 22
by their very nature, have a life span of between 20,000 23
and 160,000 kilometers, depending on what type of 24
filtration you have. There is some motor trucks and 25
taxi cabs running around in Canada and the United States 26

that have their engines basically filled with oil once 1
almost for the life of the vehicle, as compared to doing 2
anywhere up to fifty to a hundred oil changes with 3
regular type oil. So our waste oil is cut down 4
significantly. 5

Another attribute of synthetic 6
oil -- and this is a real nice one for Alberta -- is 7
that it stays liquid down to colder temperatures than 8
you'll ever go out to at work. And I've had personal 9
experience with this, and it's quite astounding. What 10
that leads down to is that not only are you using cold 11
starts, but I checked with Edmonton Power, it costs 46 12
cents to plug your car in during the cold parts of the 13
winter, based on an average of 14 hours a day, between 14
work and between home, or people get home after work, 15
plug it in, leave it in all night, and the next morning 16
they take off for work. 17

With a synthetic oil, you don't 18
have to do this. You can just plug in your battery, 19
only 4 cents a night. Because the only reason we have 20
block heaters in the first place is because we have yet 21
to develop an oil that stays liquid at cold temperatures 22
and yet you can still use it in the heat of hot summer 23
weather. And I know that quick lube shops are going to 24
be real mad at me for making this public, but they would 25
just as soon have you dumping your oil every 3,000 26

kilometers.

Another situation is that conventional oil is lost from 285 degrees Fahrenheit on, it starts to smoke, and by 300 degrees, it's getting close to its fire point, in most cases. Synthetic is stone stable right up to 450 degrees Fahrenheit, which is 232 Celsius, which means that you can run your engines hotter with less wear and tear and less air pollution. We have had documented situations where in the United States the car will fail the E.P.A. tail pipe test, switch over to synthetic lubricants, come back two weeks later and they can pass it, and that's doing nothing but changing oil. And that I think makes a lot of sense when you're talking about clean air.

Another situation that we found is that, because of the tenacious oil film of synthetic, because it does stay stable throughout the life of the oil, it increases the longevity of engine parts, camshafts, hard surfaces and bearings, by anywhere from two to five times, particularly in cold starts. A lot of engines get started and the oil -- or the -- what has now become glue down in the oil pan doesn't even circulate for anywhere up to five minutes. Meanwhile, the components are upstairs spinning around like crazy, wearing out. You just ask anybody who owns an overhead cam engine; after about three years of cold winter

starts, when they have to get the cam bearings replaced, 1
how much fun that is. So there is an advantage to the 2
pocket book, plus there's also an advantage to clean 3
air, which, of course, this particular group is about. 4

And, last but not least, without 5
question, we have yet to have anybody get worse mileage 6
with synthetics, and some get as high as between 2 and 7
10 percent improvement, and that ain't all bad either. 8

The purpose of me being here is 9
not so much to sell all you guys this stuff out in the 10
hallway here but basically is just to get the knowledge 11
out to the Government. I've already been to other areas 12
of the Government, because I've got a lot of media guys 13
bouncing up and down wanting stories on this, and I only 14
thought it right that the Government get it first, then 15
it go to the media. 16

But the environmental situation 17
is here to stay; it's not a fad. Synthetic oils are 18
here to stay; they're not a fad. They're coming, just 19
as surely as radial tires took over cross-ply tires. So 20
you heard it here and you heard it now. 21

And where can you get synthetic 22
oil? You can get it at Canadian Tire, and you can get 23
it from Mobil stations, and you can get it from Amsoil 24
dealers, if you can find one. 25

Thank you very much. 26

MODERATOR MILLARD: Thank you. 1

Craig Schneider? 2

CRAIG SCHNEIDER: I just wanted to talk tonight a 3
little bit about a couple of points that were mentioned 4
already by the Moderator at the start. I looked at the 5
priorities of this group, and I decided to concentrate 6
mostly on greenhouse gases, specifically, carbon 7
dioxide. I decided that there has been plenty said 8
about acid deposition with the Acid Deposition Research 9
Program, and much of the energy industry already have 10
legislation that governs them, is already designed to 11
control sulphur and nitrogen oxides and their emissions. 12
Carbon dioxide is something that's relatively new and 13
the worry about its contribution to global warming. 14

I'm not really going to mention 15
too much about why I believe it's a problem. That's not 16
really an issue of 15 minutes. I'm just going to -- 17
apart from the idea that we have to do something about 18
our rates of emission of carbon dioxide, assuming that 19
it will cause an increase in the greenhouse effect and 20
global climatic warming, the main idea I wanted to bring 21
forward tonight was that efficiency increases and 22
reduction of energy use caused by an increase in 23
efficiency in our industry could be a very powerful 24
technique for reducing the carbon dioxide emissions. 25

And one of the problems, I guess, 26

is that industry is -- I don't know if you could say 1
industry would be slower to change than public 2
attitudes. Probably both are a big problem, but 3
industry is certainly more costly, and it will probably 4
involve a fair bit of government nudging and economic 5
consensus and that sort of thing. 6

And the idea that I want to 7
propose mainly was something called industrial ecology. 8
And I'm not even sure where the idea first got brought 9
forward, but it's something I have discovered relatively 10
recently. And the basic premise of it is that you treat 11
industry in a given area, say a province or a country, 12
the same way as you study the ecology that it's 13
affecting. 14

And kind of an example of this is 15
a given industry will always produce a product, but it 16
also has a whole series of waste products as well. It's 17
not just valuable products that come out the end. And 18
many industries use primary natural resources as the 19
input, but other industries don't use natural resources 20
or primary resources as the input, they use secondary 21
resources, which can in some cases be the waste from 22
another industry, and given that some of the -- a lot of 23
the wastes are mostly toxic and nobody needs them, 24
right, but one of the biggest wastes that comes out of 25
many industries is thermal energy, and it's just in a 26

lot of cases not economical to improve the efficiency of 1
the original process, be it a gas plant or a coal-fired 2
electrical plant, and so a lot of heat just goes out the 3
old stack. 4

And I guess I should mention why 5
I got on to this, and I'll kind of lead into an example 6
of an industrial ecology. 7

I saw in the media a report about 8
a gentleman who was trying to sell some small electric 9
generators to the oil and gas industry and put them on 10
their flare gas -- their gas flares, and he claimed that 11
you could almost economically generate electricity by 12
running these electric generators off the flare that was 13
just essentially burning gas -- waste gas and creating 14
heat and a bright light in the night. 15

The problem was that the cost of 16
creating the energy, by the time you paid the provincial 17
royalty on gas, was greater than it would cost to create 18
energy at Genesee or Sundance or one of the coal-fired 19
plants. And this gentleman was basically asking the 20
Government for a break on royalties charged on waste 21
gas. And the problem with that as the Province sees it, 22
of course, is that waste -- any gas should be charged a 23
royalty, but it's only charged a royalty if it's 24
actually used, okay? If you burn it as a waste product, 25
it's not charged, the royalty isn't applied, as far as I 26

can understand. And so this gentleman was trying to 1
claim that, well, if they're just going to throw it out 2
anyway, why not waive the royalty and we'll get some 3
electricity out of it. 4

And I guess the example of that 5
being an industrial ecology situation was that here was 6
an industry that could run off the waste of another 7
industry and thereby reduce the amount of carbon dioxide 8
produced in the secondary industry, that producing the 9
electricity. He would more or less put a little bit of 10
the coal generation out of business by running 11
electricity off these gas flares. 12

And so here you have a bit of a 13
stand-off. The Province doesn't want to reduce the 14
royalties for this situation, because then you get into 15
a question of, well, what deserves to be not produced 16
and what deserves to be charged. 17

And I more or less saw two ways 18
out of that problem. One was to look at it in terms of, 19
first of all, why is it not economical, even with a 20
royalty on there? I mean, should it be cheap to burn 21
coal to make energy, cheaper than burning natural gas to 22
make energy, for example? 23

And maybe one of the problems 24
with it not being economically viable was that the coal 25
was actually underpriced, we weren't paying the full 26

price, the full cost of generating the electricity by 1
coal. Coal, as many of you may know, actually has a 2
very high carbon dioxide -- I guess factor, they call 3
it, which means that, when you burn coal, you get a lot 4
of carbon dioxide relative to if you burn natural gas. 5
It's almost twice as much, I believe. 6

Another way of looking at it is 7
the way the gentleman was looking at it, was why charge 8
a royalty on something that's just being wasted anyway, 9
why not, for example, make it an incentive to create 10
electricity out of this -- these gas flares? And his 11
point was that you could in some way charge the royalty, 12
either reduce the royalty or subsidize the cost of the 13
electricity and thereby make it possible to generate a 14
lot more electricity and in the future reduce the cost 15
of building more coal-fired plants, which makes a 16
certain amount of sense. 17

Okay, so the idea being, 18
basically, on the whole, we've got to look at the whole 19
of industry and not just this plant or that gas well 20
over there or whatever and say, well, everyone's got to 21
do their bit to cut down, someone's got to kind of get 22
together and organize things and say, why don't you guys 23
over here look at what these guys are dumping into the 24
air or the water or whatever and see if you can do 25
something with it, and, on the whole, we should be able 26

to reduce it a fair bit.

1

Something that sort of relates to

2

all this -- I don't know if it was mentioned earlier or

3

not. I got here a little late. But the goal of a 20

4

percent reduction in carbon dioxide by the year 2005 is

5

kind of a global goal that's been set and not entirely

6

accepted by everyone, but it's a number that's being

7

thrown around. As soon as you start throwing around

8

numbers like this, there's always people that will stand

9

up and say, yes, we can do it, and others who come along

10

and say, oh, it's going to cause a lot of grief.

11

And I would just like to say to

12

the people who are now coming out and saying, you

13

know -- I call it the Armageddon view, well, there's

14

going to be mass unemployment and Alberta's going to

15

lose out on their royalties because no one's going to

16

want to burn our fuel and all this, it kind of comes

17

down to seeing the glass half full -- or half empty

18

instead of half full. A lot of people will, whenever a

19

new restriction or a new law or a new way of playing the

20

game is foreseen, will automatically just go around and

21

say that, well, we like the old way just fine, but the

22

problem is that you can continue to deny a problem and

23

continue to do more studying and more studying, but

24

sooner or later, the ones who get on the horn first are

25

the ones who come out ahead.

26

And all you have to do is look at 1
the way the Japanese came through the original oil price 2
crisis in the mid-'70s when the Americans put a -- what 3
they call fleet fuel consumption goals on the auto 4
industry, and the Japanese responded to it much quicker 5
than the North American auto industry did with bringing 6
out fuel-efficient cars, and I think that the North 7
American auto industry is still trying to catch up. 8
It's much closer now than it was back then. But it's 9
all again a question of how long do you stand around and 10
say, you know, it's not a priority and watch the other 11
guy get ahead. 12

And so, on that end, I would 13
like to see Alberta view itself a little bit more not as 14
a producer of fossil fuels but a producer of energy, and 15
if there's going to be new forms of energy, new ways of 16
producing energy or just increases in the efficient use 17
of energy, Alberta should be, instead of standing around 18
and wringing our hands and saying, well, gee, we're in a 19
tough spot because we're the ones selling all these 20
crude resources, we should be out there trying to get 21
ahead of everyone in figuring out how we're going to get 22
around it, and therefore when our sales start to go down 23
in say fossil fuels and we start to have to pinch our 24
own industry a little bit, we'll have the results here 25
in Alberta and the investment can be made here, and it 26

will help alleviate the crunch of reduced royalties to 1
the Province. 2

And that's about all I have to 3
say on that. 4

MODERATOR MILLARD: Thank you very much. 5

Hans Weissenborn? 6

HANS WEISSENBERN: Good evening, Mr. Moderator, or 7
may I call you Vern? 8

MODERATOR MILLARD: You certainly may. 9

HANS WEISSENBERN: Good evening, ladies and 10

gentlemen. My name is Hans Weissenborn. I live in 11

Sherwood Park, and I am here representing the Consumers' 12

Association of Canada. 13

I learned from your earlier 14

remarks that there was a stage 1 to this where certain 15

stakeholder groups had some input. I guess we weren't 16

aware of that. However, as a consumers' association, we 17

are not really a stakeholder group. We are not 18

environmentalists in the strict sense. We are also not 19

producers. So I think I can fairly say that the 20

Consumers' Association really presents and represents a 21

large number of people of Alberta. 22

In fact, the Consumers' 23

Association of Canada has about 130,000 members in 24

Canada and about 15,000 in Alberta. As a matter of 25

fact, if you subscribe to one of the Canadian consumer 26

magazines, you are automatically a member. Some people 1
don't even know that. We also figure that, for each 2
subscription, this little booklet is being read by at 3
least three or four people, so our audience is much 4
greater than the 15,000 in Alberta. 5

We also have a product 6
information line that is open to all consumers, and we 7
do get calls and we do get, in the -- well, in the 8
recent past, we get more and more calls about 9
environmental matters. And, as a matter of fact, I 10
picked up this consumer magazine, because it says "Going 11
Green", which, of course, we are interested in 12
environmental matters. 13

I live in Sherwood Park. And if 14
I may contradict you a little bit, Vern, you said smog 15
is not really a problem in Alberta. But some mornings 16
when I drive in to Edmonton, I can see some 17
yellow-brownish haze hanging over the city, and I think 18
in California they would call that smog. We don't call 19
it this way, because we don't want to admit that we have 20
it. 21

Might I also add that, for some 22
of you have read the environmental section in the -- one 23
of the recent Maclean's magazines, I'm originally from 24
Bitterfeld in what used to be East Germany, which 25
apparently is the worst-polluted place in the world. 26

And their pollution doesn't necessarily all come from 1
energy-related emissions. But those people over there 2
didn't want to admit to themselves that they really had 3
a big problem. They do now. Perhaps we don't want to 4
admit to ourselves that we are getting into a problem. 5
Perhaps, yes, we are a long distance away from 6
Bitterfeld, but we are getting there. 7

In any case, every time I drive 8
down there, and you just have to drive down when it's a 9
calm day and it has to be fairly reasonably early in the 10
morning, but the sun has to be out, and you can see that 11
smog, just about every morning that there isn't a 12
great -- or there isn't a reasonably strong wind 13
blowing. The trouble is, when there is a wind blowing, 14
it usually comes from the west. So where does that 15
stuff end up? In Sherwood Park and the rest of the 16
countryside. So I don't know if I am too happy about 17
it, and I think the Clean Air Strategy for Alberta is 18
certainly needed. 19

Coming back to the Canadian 20
Consumers' Association, our role, our purpose, is to 21
make -- to provide information to consumers that is 22
beneficial in making purchases. But that's not limited 23
to the quality and cost of consumer goods, but C.A.C. 24
considers the environmental harm or benefit of an item 25
as an important consideration for consumers. C.A.C. 26

also endeavours to provide input whenever 1
consumer-related decisions are made. I guess that may 2
be one of the reasons that I'm here. 3

The C.A.C. does not have an 4
official policy on air pollution. Maybe air is not 5
considered to be a consumers' item. However, we all 6
consume energy to heat our homes, to drive our cars, and 7
we therefore contribute to the greenhouse effect and 8
other pollutants. We also buy products that consume 9
energy, such as cars, furnaces, appliances, and by 10
choosing our purchases carefully, we can perhaps buy a 11
more fuel efficient car or fuel efficient furnace or 12
electrically more efficient appliances. In addition to 13
that, some of the items that consume energy do not only 14
produce greenhouse gases, they produce other air 15
pollutants in the process. 16

One other area, one other form of 17
energy that tends to be neglected is the use of 18
electricity. In our home, electricity seems to be so 19
very clean. We don't realize, we don't see immediately, 20
that almost 90 percent of our electricity in Alberta 21
comes from coal-fired plants, as the previous speaker 22
pointed out, or generates twice as much -- or more than 23
twice as much carbon dioxide per unit of heat than say 24
natural gas. 25

In addition to that, because 26

electricity has to be transmitted over long distances, 1
only about a third of the initial energy is usable at 2
the home. Now, obviously, if consumers had all this 3
information, perhaps we could make wiser decisions as to 4
how to buy our energy-consuming appliances and how to 5
use energy. 6

At C.A.C., we endorse the steps 7
to increase energy efficiency, the steps that are listed 8
in the new fact sheet under "Residential" in the fact 9
sheet on Energy Efficiency. And the C.A.C. has in the 10
past and will continue to give advice about such 11
measures to consumers. 12

We also strongly endorse the four 13
"R"s, reduce, reuse, recycle and recover. And, by the 14
way, some people have spoke about the fourth "R", the 15
recover, which simply means that, if you can't reduce or 16
reuse or recycle, then perhaps you can at least recover 17
the energy by efficiently perhaps building that 18
particular item. However, that is the least desirable 19
of the "R"s. 20

And recycling, particularly in 21
Edmonton, for specific reasons, recycling seems to be 22
such a buzz word these days. It would be much better to 23
start reducing, and particularly in terms of energy we 24
use, is what we should be doing. 25

Now, conscientious consumers 26

don't mind paying the extra price for emission control 1
equipment on a car and keeping it in good condition, but 2
not everybody is that committed and there are many cars 3
and trucks around that no longer meet emission 4
standards. 5

The question is how to enforce 6
these standards. Should we have a yearly inspection or 7
random testing or should we leave things as they are? 8
Many states and some provinces have annual vehicle 9
safety inspections that include emission checks. Should 10
motorists be forced to pay for such inspection? Should 11
it be included in the licence fee, or should it be taken 12
out of our general revenue, which would mean that even 13
non-motorists would have to pay for such tests? Those 14
are questions that the C.A.C. does not really have a 15
policy on, but it would be questions that we have to 16
look at. 17

And private cars are not the only 18
polluters on the road. Trucks and other commercial 19
vehicles are often the greatest offenders. I recently 20
spoke to a visitor from Germany, and he was amazed that 21
some of our diesel trucks can belch black clouds of 22
smoke into the air without being pulled over and being 23
told that he has to report with his equipment properly 24
adjusted. But I guess we don't do that here. 25

Well, even the best emission 26

controls will not prevent all air pollution. We all 1
know that we should reduce the amount of driving we do, 2
car pooling and public transportation. Public 3
transportation in Alberta, while it is getting better, 4
is still a long way from where it is in other 5
industrialized countries. And again we have to face a 6
question, are we prepared to subsidize public 7
transportation in order to reduce the use of energy? 8

If the answer is yes, where 9
should the money come from? Should we pay more taxes on 10
gasoline? After all, we already pay 17 cents of 11
every -- 17 cents of every gasoline dollar on tax, and 12
that is before GST. Let me tell you, in most European 13
country, gasoline tax is more in the order of 50 14
percent. 15

Even if we decide to drive, we 16
can still reduce fuel consumption. A few weeks ago, I 17
brought back some of the recyclable materials, and in 18
Sherwood Park, we don't have a blue box program, so we 19
have to bring it down to a recycling depot. I observed 20
one lady who had a trunkful of materials, and she very 21
carefully sorted it out into the containers for glass 22
and paper and metal, and it took her several minutes. 23
So, obviously, she was a very conscientious consumer. 24

The trouble was, all the time 25
along, her car was idling. Did she not know that an 26

idling engine first of all has an efficiency of zero, 1
because you're not going anywhere? It also wasn't cold, 2
because it was a few weeks ago. It could have been 3
today; it was cold today. Also, perhaps information 4
should be made available to tell people that an idling 5
engine emits much more pollutants than an engine that is 6
driving or running a car at proper speed. So, again, 7
information and education is necessary, and I guess that 8
was said by the Moderator earlier. I noticed that there 9
was a big item that education is necessary. 10

So there are many more questions 11
to be answered and much work and education to be done. 12
The C.A.C. has many volunteers with a key interest in 13
environmental matters. This interest is at the same 14
time tempered by realistic views of the cost and 15
achievability, because we do not have only the 16
environment as our only goal, we also want to be sure 17
that we don't have to pay too much for things that are 18
beneficial to the environment. We would like to get 19
more involved in the development of a Clean Air Strategy 20
for Alberta. The Consumers' Association is particularly 21
well prepared in providing information for consumers, 22
and we would like to play an increased role in this area 23
if we can somehow be contacted, and we have quite a 24
number of volunteers available. 25

Now, I would like to add a little 26

personal concern to the present proposal, and that is 1
not necessarily the C.A.C. stand. I don't know what the 2
stand of the C.A.C. is on this. In one of the letters 3
that I received as an invitation, it was stated that 4
there will be future opportunities to deal with other 5
air quality issues. However, I also agree with the 6
statement on the back of each of the blue fact sheets 7
that says that the greenhouse effect, acid depositions 8
and smog cannot be addressed in isolation. 9

It is difficult to separate 10
pollution sources into energy-related and 11
non-energy-related items. Is the burning of wood in a 12
wood stove an energy-related item? There is also a 13
danger that we get so involved in our -- in the present 14
issues that we may forget about the other sources of air 15
pollution, such as the burning of wood as heating fuel 16
or in slash-and-burn land clearing and the burning of 17
garbage in some rural areas, as well as 18
industrial-chemical processes, including pulp mill 19
emissions. 20

The fact sheet on methane gas 21
lists biomass burning as a source of methane ahead of 22
gas drilling, vending and transporting. So, obviously, 23
slash burning, which is biomass burning, creates more 24
methane. It also destroys some living forests, and 25
living forests help in reducing carbon dioxide in the 26

air. 1

And I just heard this morning on 2
the CBC that, around the world, it takes about two acres 3
of healthy forest to eliminate the -- per person, two 4
acres per person, to eliminate the carbon dioxide that 5
each person in the world generates. Now, obviously, we 6
are already falling short, because carbon dioxide is 7
increasing in the atmosphere, but we seem to be going 8
ahead, not just in Brazil but also in Alberta, to cut 9
down our forests more and more. 10

Another one is burning of garbage 11
in some rural areas. And when we burn garbage, in 12
particular in rural areas, we do not have any toxic 13
round-up or toxic deposit depots, and I'm afraid that, 14
particularly in rural areas, some house hazardous 15
chemicals and some farm hazardous chemicals will end up 16
in the garbage, and then, in some areas, that garbage 17
will be burned, and I'm not sure what kinds of toxins 18
come out of this burning garbage. 19

When we go back to burning wood, 20
when wood is burned at a slow process, at low heat -- 21
and that's usually the case in slash burning, but it's 22
also the case in an airtight wood stove -- we don't only 23
produce carbon dioxide and methane, but we also produce 24
such things as dioxins and benzopyrenes. Benzopyrenes, 25
by the way, are the major cancer-causing toxins in 26

cigarette smoke, except that, in wood smoke, they are
many times greater in concentration. And, of course, it
gets worse if we thought of some things as colored paper
or treated wood in our wood stove.

It is also well documented that
uncontrolled emissions from many chemical factories and
mills are not only foul-smelling but present a real
long-term health hazard. And, as I said, the emissions
that came out of a place called Bitterfeld in East
Germany are not necessarily energy-related, they are
mostly from chemical factories.

But it has other consequences. A
while ago, I talked to a tourist who was on his way to
Jasper, and he said he got a little too tired to drive
on so he thought he might stop at Hinton. He got out of
his car, took one whiff of the air, decided that he
really wasn't tired enough, he would drive on to Jasper.

To summarize, my -- and, as I
say, this is my personal concern -- to consider a Clean
Air Strategy without including all possible pollution
sources is analogous to creating a non-smoking area
where cigarette smoking is prohibited but cigars and
pipes are allowed. Thank you.

MODERATOR MILLARD: Thank you. Tooker -- oh, no.

Lorraine Vetsch and Mitch Pronaugh?

LORRAINE VETSCH: Mitch Pronaugh will be submitting

on behalf of the Friends of the North.

This will be a slight shift from the specific outlined purpose of CASA, but he will be addressing the volatilization of organic compounds from solutions and water.

MITCH PRONAUGH: Okay. I didn't realize that the format was just the way it was tonight, so I am going to try to keep it less formal than I thought it was, and if you will help me with that, I appreciate that.

For several years -- this is on the subject of volatilization rates of chlorinated organic compounds from treated effluent treatment systems of pulp mills. However, it relates equally, or roughly equal, to volatilization of organic compounds from other similar sources such as municipal sewage treatment systems and oil sands plants, and other things.

For several years pollution concerns regarding bleached kraft pulp mills have focused on the discharge of chlorinated organic compounds, AOX for short, resulting from the use of chlorine and chlorine compounds as bleaching agents. Industry responses to the problem of AOX included the use of better digesters and oxygen delignification to reduce the lignin content of the pulp before it reaches the bleach plant, increased substitution of chlorine

dioxide for molecular chlorine, and adoption of 1
activated sludge effluent treatment systems capable of 2
removing 40 to 45 percent of the AOX from the effluent. 3
This paper concerns the AOX which disappears on its way 4
through the effluent treatment system. By estimating 5
rates of volatilization from the various components of 6
the activated sludge system, it can be shown that 7
volatilization may be the dominant AOX removal mechanism 8
in many cases. 9

The background on this is that 10
biological treatment of pulp mill effluent was 11
originally undertaken to reduce its biological oxygen 12
demand by microbial action, and for this it has been 13
effective. Coincidentally the same systems are found to 14
remove 30 percent or more of the AOX from the effluent. 15
Although it was initially thought that the bulk of this 16
reduction was due to microbial activity, recent studies 17
of bleached kraft pulp mill activated sludge effluent 18
treatment systems have found that only 1 1/2 to 3 1/2 19
percent of total AOX is found in the sludge. This shows 20
the fraction of AOX associated with settleable particles 21
due to sorption or metabolism is very low, and the great 22
majority of removed AOX must be accounted for some other 23
way. It's not difficult to find statements in the 24
literature to the effect that most of the removed AOX 25
must be dehalogenated by microbes in the aeration basin. 26

Since firm evidence is lacking, these statements seem to 1
be based on the assumption that the removal is caused by 2
the microbes: in the absence of other possible 3
microbial pathways, dehalogenation is presumed to be the 4
explanation by process of elimination. 5

Another mechanism for AOX removal 6
is volatilization from the effluent treatment system. 7
That volatilization plays a role in the AOX removal is a 8
matter of general agreement, but it is often incorrectly 9
assumed that its importance will be limited to a few 10
chemical species, such as chloroform, which have 11
relatively high vapour pressures. Published reports of 12
field measurements of AOX volatilization from bleached 13
kraft mill effluent treatment systems appear to be 14
entirely lacking; until recently, until 1989, even 15
suitable procedures for measurement were not to be found 16
in the literature. 17

Now I want to break off there. I 18
just thought I would read the introductory part of my 19
paper. I hope not to confuse anybody, and if so, I am 20
going to try and unconfuse people. 21

What I am talking about is the 22
organic compounds, and particularly chlorinated organic 23
compounds in the pulp mill effluent, and it doesn't have 24
to be pulp mill effluent, but we developed this looking 25
at bleached kraft pulp mills, for reasons of timeliness. 26

Well, let's see. Maybe we could 1
put this on here. How did you do that? You got it 2
right side up the first time. 3
LORRAINE VETSCH: It's a miracle. 4
MITCH PRONAUGH: I know. 5
MODERATOR MILLARD: Do you want me to turn the lights 6
down a little bit? 7
MITCH PRONAUGH: Oh, I don't think that's 8
necessary. I think we can read it okay. 9
The volatilization rates from 10
water do not depend only on the vapour pressures of the 11
substance in question, but equally on the solubility in 12
water, and in many cases with organic compounds, the 13
solubility in water and vapour pressure are inverse 14
relations. So what this graph shows is this is 15
solubility in water increasing as you go from left to 16
right, this is vapour pressure increasing as you go from 17
down to up. These are various organic chemicals, 18
various organic compounds, where they fall with regards 19
to their solubility and their vapour pressure. 20
Now the lines that go at an angle 21
this way are the, these lines connect points of the same 22.
value for what's called Henry's law constant, and it's 23
the Henry's law constant which determines the 24
equilibrium which these compounds try to establish 25
between what's in the air above and what's in the water 26

below, and as you can see, most of these organic 1
compounds are concentrated in this area here, and this 2
value of Henry's law constant in this range, the 3
volatility is quite high. You can expect high rates of 4
volatilization from whatever is in solution there. 5

Now I won't go into the 6
mathematics of the thing, but this is talking about, in 7
an equilibrium situation this is talking about, if you 8
have a jar and you put some water in it and it has 9
something in a solution like that, and we will assume it 10
has something in the solution, it no doubt does, and we 11
put a lid on it like this, this is called a headspace. 12
Now the headspace vapours just means how much of the 13
stuff in solution, particular compounding solution, will 14
be found in the air above it, and this, the ratio of how 15
much is in the air to how much is in the water when it 16
reaches an equilibrium, it's not getting more and it's 17
not getting less now, that ratio is the Henry's law 18
constant. 19

What I found, in talking with a 20
number of people and reading published studies on the 21
subject, I found that people tend to say, well, because 22
the vapour pressure of the great majority of the AOX 23
species, chemical species found on the equal line, 24
because the vapour pressure is much higher than that of 25
water they just won't, you will have hardly any 26

volatilization, and that's a misreading of the problem. 1
That's looking at it as a question of how much vapours 2
would be in the air over the pure substance, not over 3
what seems to be -- not over an aqueous solution. 4

Well what happens when we -- and 5
the work on this, I was very surprised, the work on this 6
has all been done in less than the last 20 years 7
apparently, and quite a bit has been even done in 8
Canada, in Ontario. 9

So when we apply this proper 10
understanding of the problem, to make a long story 11
short, we find that in the case of modern pulp mills 12
like Al-Pac expansion, or a number of others, that the 13
proper understanding of the problem and the attendant 14
appropriate mathematics predict that the amount 15
volatilized will be about the same as the amount which 16
turns out to be removed by the effluent treatment 17
system, and there is no need for these microbes to eat 18
these nasty things, they can just stick to this stuff 19
that's not chlorinated. 20

Also, quite a lot of 21
unchlorinated organic compounds are found to be coming 22
into the air from the effluent systems as well, but we 23
haven't really looked at that yet. 24

The same thing will apply to, as 25
I said, municipal sewage treatment systems, and I am 26

sure it will also apply to oil sands projects, but I 1
don't know enough about that at this time to make any 2
sort of quantitative statement, but I do want to stress 3
that we have, I think, an unfortunate tendency to think 4
in terms of this is air and this is water, and like 5
there is some sort of a steel wall in between. Well, 6
there is not, and things are constantly moving between 7
the air and the water. In fact, things are moving all 8
over the world between the air and the water and it's 9
becoming pretty well established now that there is a 10
tendency for some very unpleasant chemicals, pesticides 11
and other organic toxic products, there is a tendency 12
for these things to move from north to south, from south 13
to north or from north to south, anyway from warm 14
regions to cold regions because they will volatilize 15
much more happen rapidly from warm waters and be 16
deposited preferentially in cold waters. 17

So what we get in Canada now, and 18
of course I suppose you don't know, but there have been 19
the findings of toxaphene in remote lakes in the 20
Canadian North which there is no other explanation, 21
apparently, than air transport from remote sources. So 22
what is happening is we are going to get more and more 23
of these various toxic products in our waters in Canada 24
as long as they are used in warmer parts of the world. 25

Now I think that one thing that 26

we should do is wake up to the problem early, and set an 1
example at the same time that we start asking other 2
people to stop doing this, because if we say "hey, you 3
people are putting too much poison in the water and it 4
volatilizes and it's air transported and ends up in 5
Canada and we want you to quit doing that, but meanwhile 6
we are going to build more pulp mills, we are going to 7
build more of this and more of that and raise the 8
allowable of this and that chemical effluent, and so on, 9
and not really enforce the law, and give out various 10
orders like that", if we do that, well nobody is going 11
to look at us as anything but a joke. So I think that 12
this is an area that has not been looked at. For 13
instance, well, it's not been looked at as it should be. 14

For instance the operating 15
permit -- operating permit, I think so -- for Daishowa 16
lists, very carefully, a number of sources from which 17
they can -- from which air pollutants can be emitted, 18
and in particular they are thinking of sulphur 19
compounds, but they don't list the effluent treatment 20
system when, in fact, that's one thing that is 21
documented now, is that there is quite a lot of H₂S and 22
reduced sulphur compounds coming off of the effluent 23
treatment system into the air. So this is not thought 24
of and not considered as a source of air pollution, and 25
it definitely should be, it very definitely should be. 26

Meanwhile, you have people in the 1
Northwest Territories that are very upset, because 2
whatever we put out is going to be headed their way, 3
their being in a colder part of the world. 4

Let's see. I don't think we need 5
that. I hope that, I would like people to ask me 6
questions, because I am sure that some people don't 7
understand a lot of the things that I have been saying, 8
and I very much hope that people will ask me questions 9
on it. 10

MODERATOR MILLARD: I think maybe we should hold that 11
off to the end, I am not sure if we have enough time, 12
but perhaps if there are they can talk to you after the 13
session and clear up any areas. 14

MITCH PRONAUGH: Anybody who would like a copy of 15
the paper here on the volatilization from effluent 16
treatment systems of bleached kraft mills, please talk 17
to Lorraine, she is better at not losing notes and 18
stuff, and we will for sure get it to you. 19

Now another thing that I think we 20
should perhaps mention is the interconnectedness of 21
several different sources of air pollution. I think I 22
am -- do I have it here? 23

This is a map of what used to be 24
called Alberta. You can see the different 25
principalities lined out in different colors as they are 26

being assigned to various dukes and earls from Japan and 1
other foreign countries. The thing I want to, I want to 2
get this on right, this is a little bit tricky for me to 3
line up, I think I can line it up. And there is a 4
reason I am doing this. 5

This green part is just to shadow 6
everything but the area that's not shadowed there which 7
is, according to the E.R.C.B., the extent of the heavy 8
oil deposits of Alberta. This is both the carbonate 9
series and the sandstone reservoir rock series of the 10
bitumen deposits of Alberta, and as you can see most of 11
it underlies these various forest management areas, 12
particularly Daishowa and Al-Pac, and the reason I am 13
bringing this up as a concern with the air pollution is 14
that, with the development of any future oil sands 15
projects, there will be air pollution attendant in the 16
area, and whether it's acceptable or not from a 17
standpoint of people that live there, from the 18
standpoint of the national interest and so on, that's a 19
question that we should decide and deal with. 20

However, there is another 21
question, and that is the effect that it will have as 22
perceived by Daishowa and Mitsubishi/Al-Pac in 23
particular, because according to their, well according 24
to the Daishowa Forest Management Agreement, and we must 25
assume according to any future Al-Pac Forest Management 26

Agreement, the trees in these areas are their property 1
and any, according to the FMA's, according to the 2
agreement signed with Daishowa already in place, any 3
damage to the trees, anything that causes a reduction in 4
growth rate of the trees, a reduction in growth rate, 5
the FMA holder, either Daishowa or Mitsubishi, will be 6
able to sue the person or company who's the source or 7
who has caused the pollution which is causing the 8
reduction in growth rates. So this is, this will be, I 9
think, a very daunting thing if you -- if anybody is 10
thinking about developing a tar sands plant in the area 11
or continuing to operate one that's already there, and 12
the volatilization from ponds associated with these oil 13
sands projects will be part of that problem. 14

I like this because it is 15
colourful, and I hope that you do too. Thanks. 16

LORRAINE VETSCH: I just wanted to mention another 17
couple of items on behalf of Edmonton Friends of the 18
North, and that the value of the forest as natural 19
scrubbers has not been studied completely or in a 20
scientific matter, and so mass deforestation is going to 21
be a problem if we don't understand the role of the 22
natural forest. 23

We obviously feel that the pulp 24
mill push in Alberta has to factor strongly into CASA's 25
strategy for reasons that Mitch pointed out, and that 26

the pulp and paper industry must be very closely 1
monitored, as is some other big industries in this 2
province. They are not monitored closely or carefully 3
enough for things going into the air, the air emissions. 4

And the FMA holders, if they are 5
not held accountable for their air emissions, and that's 6
Forest Management Agreement holders are not held 7
accountable for their air emissions and the trees on 8
their Forest Management Agreement do get sick, it's 9
worth pointing out again, as Mitch did, that they could 10
possibly seek damages from other industries in the area, 11
and so this is an important issue for the Clean Air 12
Strategy for Alberta. Thanks. 13

MITCH PRONAUGH: I am really glad you mentioned 14
about the trees scrubbing, because the work that has 15
been done, in particular the ADRP here in Alberta with 16
its modeling of sulphur deposition in the province, has 17
not taken any account of forests on sulphur deposition 18
rates or on air pollution rates, and specifically 19
avoided that subject and said so, and so the application 20
of this to Northern Alberta is pretty questionable. 21

When you remove a section of 22
forest, the result is that you will have higher levels 23
of air pollutants, because the forests are not, the 24
trees are not absorbing and scrubbing the stuff out of 25
the air, so you will have higher levels of air 26

pollution. You will also have higher levels of sulphur 1
deposition in the forests, because those trees have to 2
soak up more stuff, and you will also have more, a 3
higher level of deposition in the areas which are not 4
forested because there is less forest to take it up. 5

It sounds like a paradox, but 6
it's not when you just set up the equation here. It's 7
very simple. 8

MODERATOR MILLARD: Thank you. Tim Nolt? 9

TIM NOLT: I would like to thank Clean Air 10
Strategy for Alberta for giving me the opportunity to 11
give this presentation. This is much more informal than 12
I thought it would be, I thought I would be speaking to 13
a panel itself. 14

However, what I have to talk 15
about tonight, I would like to focus on a couple things 16
in particular. I want to talk about the greenhouse 17
effect, and as we know, the current models that are 18
being run by various institutes predict the warming 19
effect of anywhere from .06 degrees to .8 degrees 20
Centigrade per decade, and we only have about 3 or 4 21
degrees to play around with before it gets really dicey. 22
Those are at current projection rates. 23

However, there is a lot of 24
dispute to date about the greenhouse effect. Some 25
models feel that if things actually get colder, we will 26

have a mini ice age. Most, in general however, go with 1
warming effect, and what seems to be most indicative 2
about this is first off, climatology is a science of 3
probability and a science of predictability, as any 4
20th-Century quantum science is. Newtonian mechanics is 5
not applicable in these matters at all. 6

The Bedard Institute seems to 7
have run the most successful models, and a feature in 8
the running of their models was that they backtracked 9
and they started running their models from the 1950's on 10
and plugging into their calculations formulas to see 11
what kind of correlation you could get in patterns and 12
past histories to line it up, and they seem to be the 13
most indicative of what's going on. 14

The models that they run, they 15
started out running two hot summers on a die, so that 16
would be roughly eight sides, and by the year 2030 they 17
were getting, in their model, running three or four 18
faces on the die. So it seems that things are heating 19
up, and rather rapidly. 20

The worst-case scenarios by other 21
people say that we have to cut our carbon dioxide 22
emissions by 50 percent in 40 years. Now what I would 23
like to do, now that I have mentioned those factors, is 24
I would like to stop a moment and talk a bit about the 25
second law of thermodynamics for a while, because to me 26

it's rather important.

1

The second law of thermodynamics,

2

I won't get into any of the esoteric stuff, it's quite

3

simple; things go from an organized state to a

4

disorganized state, and that's what the second law of

5

thermodynamics is about. So when we put it in the

6

context of greenhouse effect or ecology or the

7

environment, it's simply a question of how much can we

8

pump into a biosphere before that biosphere breaks down,

9

before its condition deteriorates or before it gets

10

dangerous. Okay.

11

A better understanding of this

12

may be that quantum physics, which is really today's

13

language of nature, it is calculated by some people

14

that, not being religious here but this is to make a

15

point to get the understanding of what I am getting at

16

about entropy in the second law of thermodynamics, is

17

that every time we take a breath of air, theoretically

18

we should be inhaling a molecule of air that Jesus

19

Christ should have, at one time in his life, breathed.

20

Okay? That's 2,000 years ago, and that's just one

21

person breathing air.

22

What happens every time you turn

23

the ignition on in a car? What does it mean in

24

long-term consequences for future generations of such

25

men? And that's why I wanted to point that out.

26

Einstein's God didn't play dice with the universe, and I 1
don't see how we can play dice with the world. 2

So as far as the greenhouse 3
effect goes, I would just like to concentrate in one 4
area right now, and that's cars and light trucks, so I 5
am not talking about the transportation industry itself, 6
we are pretty well looking at what would generally be 7
private-use vehicles. 8

Cars and light trucks, estimated 9
by some people, produce 18 percent of the global carbon 10
dioxide emissions. They are also the largest-growing 11
source of CO₂. Currently there is 400 million cars and 12
light trucks, as compared to in 1950 there was only 50 13
million, and at the very seem time we are building 13 14
million more every single year. That's one year. In 15
two years we produce more than there was in 1950, 16
period. Okay? 17

Now as well, this is an American 18
figure, in most urban areas 40 to 60 percent of the 19
pollution, air pollution, is coming from cars and light 20
trucks. It is technically feasible to get double the 21
gas mileage out of vehicles by the year 2000, but the 22
problem is how many more vehicles will we have on the 23
road, and how much more carbon dioxide will we be 24
putting into the air. To me it seems obvious that a lot 25
of the solutions, we do have to work on technical 26

aspects, but we really have to start looking at 1
alternative sources to these problems. 2

As well cars affect, we are 3
talking about the pollution here, we are not talking 4
about the pollution to the troposphere that's being 5
calculated, we are not talking about the pollution 6
that's created to manufacture those cars, there are 7
sub-industries that are related to the cars in products 8
and service, we are not talking about the use of arable 9
land. Again, I am using an American statistic because I 10
didn't find one available for Canadian purposes, but in 11
the United States for every square mile of land they 12
have a mile of road, okay, and the car also uses up 13
land, air, and water all interconnected, and whenever we 14
are talking about a strategy for clean air, we are also 15
talking about various other aspects. 16

As well, to get back to the 17
transportation sector, a statistic from the States 18
again, in roughly 1962 or '72, excuse me, they 19
calculated that some 30 percent of all carbon dioxide 20
came from transportation, and we are not mentioning the 21
non-renewable resources that are being used for cars and 22
light trucks, what would be vans and light trucks. 23

Therefore my suggestion is -- and 24
I am going to mention a three-letter friend-getter -- in 25
the days when we are having slap-happy tax laws passed I 26

really think that we have to incorporate proper taxes,
and there are options that are available.

We can have a gas pump tax, a tax
at the gas pump, and I don't care how much you want to
go out and educate people with driving their cars and
talking nice to them to try and use public transit and
that, they won't unless you get them in the pocket book.
That's the reality of it, I think.

The other thing is a lot of
people don't want to do it because we do not have the
sufficient infrastructure now, and when we start talking
about having infrastructure for public transit we run
into two big problems; one is time; and one is money.

The time factor is very
important. We have to start working on these things.
If you believe in the second law of thermodynamics like
I do you, you realize there is no tomorrow, there is no
waiting around to see what happens. So to build this
infrastructure, if, according to the proposed
legislation for environment, the enhancement of the
environment goes, we look and take seriously the
user-pays concept in it, we would have to have a pump
tax, possibly a vehicle tax, and something else that's
come out of England which I think would be -- this
relates in general to everything -- is a concept of a
carbon tax. Okay? And in that carbon tax it's a

prorated tax on CO/2 emissions. Therefore, a fuel like 1
coal would be taxed much more heavily than a fuel like 2
natural gas. Okay? 3

The other point I would like to 4
make about the idea of having a gas pump tax is that I 5
would rather prefer to see the Provincial Government 6
handle it than the Federal Government, because the big 7
problem is that the Federal Government handles it, it 8
just goes into one big pot and it will probably get lost 9
and mixed up, messed around with, and not be used 10
efficiently. To build an infrastructure, that's a local 11
problem that has to be solved by local authorities, 12
local governments, local peoples, so if the Provincial 13
Government were to handle it I also think people would 14
be willing to accept this tax if it were earmarked 15
legislation; in other words, that tax money is 16
destinated specifically for building transportation 17
infrastructure, nothing else, especially, as I said 18
before, this slap-happy tax stuff going on now, 19
antiquated 1960's stuff. 20

But anyways, earmarked 21
legislation, I think, is important for one, people to 22
trust it; for two, to actually get the work done so it 23
doesn't get mixed up in the big pot. 24

So therefore the infrastructure 25
would bring in different gas taxes or energy taxes, 26

would have to work on public transit, meaning buses, 1
light rail, and the other thing is bicycles and bike 2
trails. The bicycle is literally the world's most 3
efficient machine. That means that it's the least 4
entropic. That means that it gets more workload done 5
per calorie expended than any other ground machine that 6
mankind has ever devised. So bicycles are no longer a 7
toy, they are part of a quantum reality, okay, and we 8
have to take these things seriously and we have to start 9
building bikeways and looking at bikes a lot more -- 10
less as toys and more as actual machines. 11

As far as, again, the 12
infrastructure goes, we are probably going to have to 13
look at building better railway systems into the rural 14
area, and that creates a bit of a problem because then 15
we are getting away from the local nature of things as I 16
suggested, but then again I think that's why provincial 17
governments should handle it, not federal governments. 18

It's also interesting because 19
Jake Epp, just last week, said that the Federal 20
Government is going to make petroleum very expensive for 21
the sake of creating less carbon dioxide emissions. I 22
don't see why it should go into federal coffers and why 23
it shouldn't be given out to local people to create the 24
proper infrastructures to make it effective. 25

And one other point here, while 26

we are talking about the greenhouse effect, we were 1
talking about, the gentleman before was talking about 2
the scrubbing nature of trees. What we have to consider 3
is that trees are literally a carbon sink. The two 4
greatest carbon sinks known are the ocean and trees. 5

The problem with the ocean is 6
nobody quite yet knows what's really going on with them, 7
how effective they are and what's they really do, but 8
they are quite certain about what trees do, and some 9
estimates claim that we would have to over the next, to 10
help cut down the carbon dioxide emissions over the next 11
40 years, that we would have to plant -- this, we are 12
speaking locally here now -- as many trees as there is 13
the size of Alaska. Okay? So we are talking global 14
terms here, then we are talking about pulp mills and 15
knocking down those trees. 16

Of course one of the arguments 17
from the people from the pulp industry is that a new 18
tree absorbs more carbon than an old tree, but except 19
when you are using that argument they are talking 20
volume-to-mass ratios, and don't forget a new tree is 21
this big. Okay? So there is a big, big problem there. 22

If you have to plant these trees, 23
then we are not talking about reforestation, we are 24
talking -- we are totally -- we are misperceiving 25
everything if we are talking about reforestation, 26

knocking them down and planting them again, we are 1
talking about what we need over and above what's 2
existing right now. 3

So therefore, reforestation is 4
the wrong word, the word is afforestation, and once we 5
focus in on afforestation that means that we have to 6
change our whole focus about trees and tree planting, 7
and to be honest instead of having a -- and I am not 8
being critical of the government, this is a personal 9
view -- but rather than creating a family day, I thought 10
we should have created another tree-planting day, quite 11
seriously, and had people go out and plant trees, 12
because it is actually that important. 13

The other thing that I would like to 14
comment on is everything is interrelated, land, air, 15
water, energy, ecology, Department of Agriculture, 16
Department of Forestry. They are not separate units any 17
more when it comes to environmental issues. 18

So to backtrack, to get back to 19
the pulp mills, I would think that these four 20
departments actually have a lot of commonality now with 21
environmental issues, and I think that maybe one of the 22
problems with the pulp mills again is that we should 23
refocus and we should ask ourselves, is there another 24
source of pulp? 25

We have farmers who have silos 26

full of grain, they can't get enough money to pay their 1
bills. Could we not possibly find another cash crop so 2
that instead of cutting down the trees, they could grow 3
a cash crop that creates pulp, and pulp can also be 4
useful in clothing and other things, so that's another 5
suggestion that I would like to make. 6

That pretty well wraps it up, if 7
I have got everything included. Again, I thank the 8
Clean Air Strategy for Alberta for this time. Thank 9
you. 10

MODERATOR MILLARD: George Marshall? 11

GEORGE MARSHALL: Thank you. This evening I am 12
representing the Canadian Chemical Producers' 13
Association, the CCPA. 14

The CCPA has previously submitted 15
its comments in written form for the review of the 16
panel. It's my pleasure to be here this evening to 17
further support the objectives of a Clean Air Strategy 18
for Alberta. I am not going to read from the previous 19
submission, but rather I will attempt to summarize a few 20
of the points that were made and to give some detail, by 21
way of example, to address global warming, ozone 22
depletion, and air quality. 23

The CCPA represents over 70 24
member companies producing a broad range of 25
petrochemicals, inorganic chemicals, and petrochemicals 26

worth a total of some \$11 billion annually. The 1
industry is highly trade oriented, with about half of 2
its production being exported. 3

Within Alberta, the CCPA 4
represents a dozen member companies with assets of \$7 5
billion, employing directly some 6,000 people with a 6
payroll of \$1/4 billion annually. Products manufactured 7
are valued at \$4 billion, with 50 percent destined to 8
the export market. Our plant operations are generally 9
world scale, our markets are global and our competition 10
is international. 11

The CCPA, on behalf of its member 12
companies, accepts the responsibility of acting in an 13
environmentally responsible manner, and is committed to 14
the responsible development, introduction, manufacture, 15
transport, storage, handling, distribution, use and the 16
ultimate disposal of all chemicals and chemical products 17
in a manner which minimizes adverse effect on human 18
health and on the environment. 19

The CCPA and its members are 20
committed to identifying issues and their solutions in a 21
co-operative partnership with all other interested 22
parties. We have found this to be a most successful and 23
satisfactory approach to solving a variety of concerns. 24

Globalization has been the order 25
of the day for many industries, and that includes the 26

chemical industry as well. Vigorous competition is 1
being met in both domestic and international 2
marketplaces. What we do within Alberta will impact our 3
competitive position here and the continued viability of 4
the chemical industry. We must continue to be aware 5
that short-term dislocations could result from 6
precipitous action on a local scale, impacting our 7
global competitiveness with potentially long-term 8
negative results. 9

The challenge, then, is to 10
identify the manner in which Alberta may demonstrate 11
leadership on these critical environmental challenges, 12
and in their solution. 13

Leadership can be practiced by 14
taking unilateral action and the consequences thereof, 15
or it can be exercised by prodding everyone forward. 16
The former can create serious disruptions, the latter 17
can accomplish the necessary change and a much smoother 18
transition with considerably more impact in the world. 19

It is therefore recommended that 20
Alberta continue to demonstrate environmental leadership 21
by forming partnerships with affected industries and 22
concerned environmental groups to attain consensus on 23
the issues. The CCPA is committed to play a positive, 24
proactive, and a responsible role within such 25
partnerships. 26

I would like to make a few 1
specific comments, and the first one relates to the 2
education and information comments that have been made 3
two or three times earlier this evening. 4

The first part of that is related 5
to better science. We need to recognize that good 6
science may not exist in all areas. We have to work to 7
improve the science, while using what is currently 8
available to our best ability, to manage the 9
uncertainty. 10

We also need to continue to bring 11
forward more information concerning the environment. 12
Some of the information we have currently is confusing, 13
some of it is contradictory, and there is certainly lots 14
of it. We need to continue to provide it to the public 15
in the best manner possible, and ultimately that too 16
will lead to better science. 17

The education system needs to 18
make use of that better science, and the increase in 19
information, and provide a balanced approach to the 20
presentation of the data. The CCPA is, in fact, 21
involved in this arena through the KEY Foundation, the 22
Knowledge of Environment for Youth, which was formerly 23
called the SEEDS Foundation. 24

Partnerships. Optimum merging of 25
environmental and economic objectives for Alberta can 26

only be achieved by early and ongoing consultation with 1
all interested parties towards consensus building. 2
Unilateral decisions by Alberta could severely harm 3
Alberta's economic performance while in fact doing 4
little to impact what is essentially a global problem. 5
We should, instead, attempt to lead, to catalyse a 6
broader initiative. 7

On global warming, reducing 8
scientific uncertainty that has already been addressed 9
two or three times this evening must be the primary 10
objective. I think this is likely to be achieved yet 11
this year at the World Climate Conference. We should 12
first obtain the deliberations from that conference and 13
know that there is a real problem that does, in fact, 14
need addressing. 15

Global warming is a global issue 16
requiring global solutions. Alberta cannot 17
significantly change the current circumstance alone. 18

Within this topic I would like to 19
speak about energy conservation, and that too has been 20
mentioned two or three times. A conservation approach 21
is most likely to have the greatest impact on the CO/2 22
component of the global warming general problem. CO/2 23
is produced as a result of energy consumption, therefore 24
it seems most reasonable to reduce that consumption. I 25
would, though, like to suggest a caution that energy 26

conservation is not a new topic to all of us, or indeed
to any of us. Any proposed program must take into
account the fact, for example, that the CCPA member
companies have had, for almost 20 years, a formal energy
reduction program known by an acronym called CITFEC, the
Chemical Industry Task Force on Energy Conservation.

Through this program, our
industry has documented a reduction of 41 percent in the
amount of energy required to produce the final product.
That's not to suggest that we are using less energy in
total, we are in fact a fast-growing component of
Alberta and Canadian manufacturers, but that we are
almost twice as efficient as we were 20 years ago in
making the same products.

That's the overall average within
the chemical and fertilizer industry. In the case of
our own company and our Western Canada Division, that
energy reduction number is not 41 percent, but 57
percent. The advantage that we have, of course, is the
Alberta industry is much newer and we have new plant
operations.

I would suggest caution in any
program that is developed that we do not penalize those
industries that have had effective programs for years.

I have a second example you may
be interested in, and again I will use my own company,

and I will refer you to the recently approved 1
Hydrocarbons Project at Fort Saskatchewan. There will 2
now be three major ethylene plants located in Alberta; 3
AGEC 1 and 2 in Red Deer, and the Light Hydrocarbons 4
plant in Fort Saskatchewan. The process design in all 5
three cases was done by Dow Chemical. When AGEC 1 was 6
designed and built, it represented the state of the art 7
technology in terms of energy consumption. AGEC 2, 8
which was designed only five years later, used 20 9
percent less energy than AGEC 1, and the Light 10
Hydrocarbons plant, whose process design package is just 11
now being completed, will use again another 20 percent 12
less energy than AGEC 2. 13

What this means is that in the 14
last ten years, our industry has managed to reduce the 15
energy input per unit of ethylene produced by 40 16
percent, and since the CO/2 produced is directly 17
proportionate to the energy consumed, the CO/2 emitted 18
per unit of ethylene produced has already been reduced 19
by 40 percent. 20

In reference particularly to 21
electricity production, which in Alberta is done using 22
coal, I suggest there may be two areas of investigation, 23
both of which lead to conservation of our resources and 24
therefore less production of CO/2 and reduced 25
accumulations leading to global warming. 26

The first is cogeneration 1
capability. Current practice within our major utilities 2
leads to a 35 percent efficiency. That was earlier 3
referred to this evening as well. Cogeneration is over 4
80 percent efficient. We must find a way to use the 5
byproduct heat energy effectively. 6

The second is coal gasification. 7
The use of coal itself is a problem. We need to 8
identify more effective and efficient ways to use the 9
coal. Gasification may be the answer, and here, Alberta 10
leadership and innovation could reap large benefits in 11
the technology as well as in reduced CO₂ production, 12
and I understand there are already plans for a joint 13
study between the Alberta Government, the Federal 14
Government, and the Coal Association which are under 15
way. 16

Finally, in any proposed program 17
relating energy use and global warming, you must 18
differentiate between the energy used as fuel and the 19
energy used as feedstock, where the carbon molecule 20
remains bound in the manufactured product and the energy 21
is still inherent in that final product. Feedstocks 22
must be excluded or exempted from rule-making in that 23
case. 24

Ozone depletion and the impact of 25
CFC's. The relationship between CFC's and ozone 26

depletion does not appear to be established. Action has 1
been agreed upon within the Montreal Protocol, and 2
others, including some new Federal initiatives. Steps 3
will be taken in a planned manner. Yet some would have 4
us believe that more precipitous actions are necessary. 5

CFC's were developed because they 6
obviously served a specific need at the time, probably 7
because they were either safer or less toxic, more 8
efficient, more effective than earlier alternatives. 9
Now we know there are some unexpected problems, and they 10
will be phased out, but we must do so in a planned and a 11
reasonable manner. We must not move to less-desirable 12
materials with yet other potential problems we are not 13
aware of today. The development of those substitute 14
materials unfortunately simply takes time, time just to 15
build plants that are going to produce the large volumes 16
of substitute materials needed. 17

While we wait for those new and 18
effective substitutes, there are indeed steps that can 19
be taken. Again, speaking about refrigeration and air 20
conditioning applications that use CFC's for example, 21
you might consider: 22

such proposals as not allowing the design, 23
purchase, or installation of new equipment using 24
controlled CFC; 25

and with existing equipment, you might establish 26

an inventory of that equipment, monitoring the equipment 1
for leaks, recovery and recycle procedures during 2
maintenance operations, and procedures for proper 3
disposal of the CFC's when they are no longer needed; 4
and putting in place long-term capital plans for 5
that equipment replacement. So there is no need to 6
stand still while we wait for the development of new 7
materials. 8

Draconian measures are not 9
needed. Partnerships in developing solutions, both 10
short term and long term, can and will get the job done. 11

A final comment on VOC. 12
Information published by Albert Environment suggests 13
that transportation contributes almost half of the total 14
VOC loading, and certain measures have already been 15
proposed to address that challenge. 16

The petroleum and petrochemical 17
industries contribute a quarter of that loading. 18
Programs are already underway to further analyze and 19
respond to this challenge. Within the petrochemical 20
industry, the first step is to get better data, better 21
science. If we don't correctly identify the problem, we 22
can't fix it. Some data suggests that that part of the 23
problem is much less significant than earlier thought. 24
That is not meant to suggest any lessening of activity. 25
As a matter of fact, within a few years, perhaps as 26

little as two or three, we will expect to have a 1
comprehensive emission measurement and control procedure 2
in place within the industry, and information and 3
methodology and programs concerning that would be shared 4
among the industry. 5

In closing, our industry intends 6
to contribute to the solution, and not to the problem. 7
Partnerships and consensus on action will achieve the 8
desired objective of a clean air environment. Thank you 9
very much. 10

HANK HOLLOWAYCHUK: Good evening. Good to see Vern 11
back. I would like to take this opportunity to thank 12
Alberta Environment, Alberta Energy and the panel for 13
giving us time to make a presentation. 14

You know, environmental problems, 15
they're a lot like big cow pies in the pasture. You 16
think that's amusing. I'll tell you why the 17
similarities exist. Environmental problems are just 18
like cow pies because, if you can't see them, you're not 19
going to take steps to avoid stepping into them, and 20
that's where the similarity lies. 21

And, having said that, I would 22
have to bring up the issue of cattle and bovine 23
flatulents or whatever Baxter Black calls it, and the 24
reason I do that is I think we can't address a clean air 25
strategy without bringing all the players into the 26

picture, and that means farmers and ranchers. And if I
got their attention now, I'll probably get everybody
else's attention.

Like I said, you can't single out
one industry. We've got to get everybody involved.
Consumers are just as much a part of the problem as we
are a part of the solution.

I think the energy sector has
made significant inroads and strides in dealing with the
pollution problems they have been faced in the last
decade. The E.R.C.B. and the energy sector have made
significant improvements in sulphur recovery, stuff like
that, just to give you some examples of -- some of the
automobile manufacturers have made significant
improvements in fuel efficiency of their vehicles,
etcetera. I don't know about you folks, but I had to
drive a car to get here. It's an old beater, but that's
reality.

Looking at the number of people
in this room, I don't really know if this has been a
success or if we can really say that we have satisfied
the objective of public consultation. I don't know if
that's because Brian Mulroney was in town the other day
or the recession is here, but, obviously, either we're
missing something or missing a lot of people. And I
don't think it's because we're not concerned, but

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somewheres along the line, I think they have fallen by 1
the wayside because of the number and diverse number of 2
issues that have sort of come up in front of the public. 3

And, mentioning that, I'm not 4
going to give you any details, but I think that what's 5
been said in this room here today has all been said and 6
done before, no earth-shattering revelations. The 7
Bretren Report mentioned some of the problems that this 8
world is facing. The Alberta Government's got a -- or 9
had a proposed action plan for enforcement -- or 10
environmental law enforcement in Alberta. It had an 11
environmental impact review task force. They are 12
proposing a natural resources conservation act. Just 13
not too long ago, Marcel Masse completed an energy 14
options sort of a song-and-dance routine across the 15
country. Later than that, the Federal Green Plan, which 16
was initiated by Lucien Bouchard and followed up by Mr. 17
De Cotret here, or whatever, I can't pronounce his name. 18

You know, there's been lots and 19
lots of talk over the years, and we know what the 20
problems are, and we know the solutions, and governments 21
know the solutions, every level of government. Industry 22
knows the problems, they know the solutions. But it's 23
like that proverbial cow pie; if you ain't stepping in 24
it, you don't think it's out there and it ain't much of 25
a problem. 26

So I wonder if we're going to 1
have to get to stages like Mexico City or Los Angeles or 2
the Sudbury/Inco smelter area where thousands of lakes 3
are now dead. Industry's not been -- the energy 4
industries have affected the livelihoods of fishermen, 5
of loggers, of maple syrup harvesters, affected the 6
tourism industry, and I wonder how much worse things are 7
going to have to get in Alberta, in Canada, in the world 8
before there's a political will and a commitment by all 9
levels of government and all people to start acting on 10
some of these major issues that face us. 11

The reason I say that is I've had 12
the opportunity to work in the Arctic, and I'll admit 13
it's the oil and gas exploration sector of it, but 14
having had that opportunity to work there for the last 15
20 years, I have noticed something that I never noticed 16
20 years ago, and that's the Arctic haze, and that is a 17
result of industrial pollution congregating at the North 18
Pole. And it's visible, and it's the same kind of a 19
haze you see flying into Los Angeles, it's the same kind 20
of a haze you see driving into Edmonton from St. Albert 21
or from Smoky Lake, where I come from, so I realize that 22
all this is well-intentioned and I think everybody has 23
that same idea, but I wonder how much further we're 24
going to have to go along the road before we actually 25
start taking more action and quicker action and 26

responding to problems before they get sort of out of 1
our control. 2

And, mentioning that, you may be 3
aware that Big Green was defeated in California as 4
Initiative 128, I believe, by a margin of 2 to 1. Well, 5
everybody thinks environment's important. And 6
California's probably got some of the best examples of 7
what happens in urbanized -- a highly industrialized 8
area where they import people into areas where there is 9
no water and stuff like that and start building around 10
those areas. 11

And that brings me to the issue 12
of planning. I think that that's one of the things that 13
we should be looking at when we plan cities, industrial 14
complexes. What we do now is -- the way we site stuff 15
creates large urban centres like Sherwood Park and 16
St. Albert and everywhere else, Gibbons. And what do 17
these people do? They all jump in their car and they 18
commute to and from their job, and not mass-transit, one 19
or two people to a vehicle. 20

And so we're part of the problem. 21
And I think we're going to get to the stage that they're 22
at in California where they have made some initiatives, 23
you know, fast lanes for buses, fast lanes for more than 24
one person in a car. So that's easy to solve: You put 25
a dummy in your vehicle and away you go, and down the 26

fast lane. And that happens in L.A. every day. That's 1
how they're coping with pollution. 2

What else do I want to say in 3
summing up here? Like I said, I also have problems with 4
a government that tells us it's doing all these good 5
things. Alberta Environment tells you it monitors the 6
Clean Air Act, they licence and monitor land fills, they 7
administer the Clean Air Act. When you get into the 8
reality of the situation, though they have done a lot of 9
good in a lot of areas, there's one big problem, is that 10
they have problems getting a handle on little things 11
like the land fills the previous gentleman alluded to 12
burning and continuing to burn not only in Alberta but 13
Saskatchewan, Manitoba -- heck, I've seen them burning 14
in Texas. They burn all across the country. Yet the 15
Alberta Government says, we've got Swan Hills waste 16
treatment plant, we've got the best facility, the best 17
regulations. Well, that's fine and dandy, but if we 18
can't get a handle on these little problems, which are 19
very much a serious air quality problem in rural 20
Alberta -- and what's deposited from that smoke and 21
emissions travels into the water courses, into the air 22
we breathe, deposit on land and into the food chain, the 23
food you eat, so we've got to start getting a handle on 24
some of those things. 25

And I don't think that the 26

present proposed Environmental Protection Enhancement 1
Act is going to address those issues, and they're 2
related to air quality in Alberta. It's still a toss-up 3
between, well, we're Alberta Environment, we do this and 4
that and we licence and monitor, but if it's a land 5
fill, hmm, Public Health Act, wasteland regulations, the 6
local Board of Health. 7

And there again I find a big 8
problem with what's happening in this country. The 9
Federal Government shuffles responsibility down to the 10
Provincial Government. The Provincial Government 11
shuffles responsibility down to the local authorities. 12
The local authorities, including boards such as the 13
North East Health Unit, who sits on them? Local town 14
councillors, local county councillors, and they're 15
subject probably in more ways than the federal and 16
provincial politicians to peer pressure from within a 17
community, and that's why nothing gets done, and they 18
don't act on legislation that's in place and is 19
well-intentioned and is already adequate to address a 20
lot of our problems, but the political will isn't there 21
and the infrastructure isn't there. 22

I'll give you one other example 23
that deals with hospital incinerators in the city of 24
Edmonton. I was driving down 111th Avenue yesterday. 25
Low and behold, I'll tell you, there was a pile of black 26

smoke coming off that Royal Alexandra Hospital 1
incinerator. So being the good corporate citizen that I 2
am, what do I do? Man, I get on the phone, I know 3
there's a toll-free number, Alberta Environment, call 4
anytime, we'll be there anywhere, anytime to deal with 5
the problem. 6

I did just that. That smoke was 7
being drawn up by the fresh air intake at the Highland 8
Centre. People are exposed to it. I don't know what's 9
going up in that smoke stack. I phoned Alberta 10
Environment, left them with the message, give them the 11
date, the time, location. Went down to Humpty's two 12
blocks away and had breakfast and watched that thing 13
belch smoke, but I'm not worried, Alberta Environment is 14
on the job and they're doing their thing. 15

Well, I phoned back today and 16
asked them how they made out. Well, it just so happened 17
I guess I phoned around noonhour, and it just so 18
happened that I was the bad guy complaining, and they 19
have heard from me before, and it just so happened that 20
this was the first issue that they couldn't send anybody 21
out to investigate in the last six months. I don't 22
know; if you're confident with that, that's fine, but I 23
have a real problem with them having adequate finances 24
and manpower to do the job they are telling Albertans 25
they are doing. And if that means getting more people 26

into that Alberta Environment portfolio so that they 1
have adequate inspectors, then that's what's going to 2
have to come before you're going to see any improvement 3
in the environment. 4

And the reason I mentioned those 5
two issues, the land fills and incinerators, is we all 6
know already after the Lodgepole blow-out, if you've got 7
a gas well blowing somewheres and it may not be one 8
one-hundredth as toxic or in any way endangering 9
anybody's health, by golly, after Lodgepole, you've got 10
everybody out there. You've got the A.L. -- well, not 11
the A.L.C.B. but the E.R.C.B -- just wanted to see if 12
you guys were awake out there -- you've got the E.R.C.B. 13
out there, you've got the Public Health inspectors out 14
there, you've got Occupational Health and Safety out 15
there, you've got Alberta Labour out there. Hell, them 16
guys are running all over each other in the field trying 17
to see what's happening out there. You just phone a 18
land fill problem in or an incinerator problem. 19

There's hospitals that have been 20
built five years ago that were brand new, state of the 21
art, we added technology. No licence, no permit to 22
conduct an incinerator, no licence to operate it, no 23
certificate of compliance until some guy named Vankol 24
Widget (phonetic) phoned this in and said, let's check 25
this out. So if you guys think that Alberta Environment 26

is doing things in your best interests, I say we're 1
sadly being deluded. 2

I guess I have said enough. I 3
just think that there's a lot of options available, such 4
as recycling, and I think the industry has made some 5
good inroads into those areas, and I know the Petroleum 6
Association is looking at recycling of used motor oil, 7
which is a problem, though it's not maybe directly an 8
air quality problem unless it's burning some land fill 9
illegally. 10

Just one other thing, a word of 11
caution, I guess, and I guess somebody from industry 12
mentioned it: We've got to be careful so we don't get 13
too carried away, and McDonald's going to paper is a 14
good example of what good-intentioned environmentalists 15
can do to big industry in the name of environmental 16
movements. I think that it's a big mistake and it's a 17
shallow victory for the environmental movement in this 18
province, if they think that they made the right 19
decision by going to paper versus polystyrene. I think 20
if you add everything together, polystyrene is the way 21
that McDonald's should have stayed and it's the way they 22
should have kept on doing their business. They had some 23
50 or 60 recycling depots set up across their stores. 24

With the weight factor, the 25
energy requirements that go into each one, even though 26

one is non-renewable, one renewable, just go to Eastern 1
Canada and see what pulp mills do to your river systems, 2
just go to the West Coast and see how many fisheries are 3
shut down because of the pulp mill pollution, just go to 4
certain areas and see how many areas aren't properly 5
reforested, 38 percent in Alberta, that aren't 6
adequately reforested. So a lot of times, we think we 7
score a big victory. Really, we're deceiving ourselves, 8
and we're going to be in for a big surprise down the 9
road. 10

The other thing I'll add in 11
closing is that I was at a Canadian Professional 12
Biologists symposium in conjunction with the Water 13
Resources Commission. Being a poor old 14
environmentalist, I had to sneak into the damn place, 15
can't afford the \$265 fee, and I'll admit to that, but a 16
lady from the Calgary Herald said, well, you know, we're 17
doing our thing for recycling now, we've got a drop-off 18
centre for papers. Hell, that's a good idea. You bet 19
it is. Only like the previous gentleman mentioned: 20
What happens is every do-gooder in the community that 21
wants to do a bit to help environment, and with good 22
reason, jumps in their gas-guzzler with three pounds of 23
newspapers, drives down to the Calgary Herald and stands 24
in line for two hours burning three gallons of gas to 25
drop off five pounds of paper. So, really, there again, 26

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unless it's a convenient and effective collection 1
system, a lot of times again, we're deceiving ourself. 2

That's all I would like to say, I 3
think. I would like to thank everybody for their 4
attention. It's hard to follow up the nine previous 5
speakers, but I hope you have enjoyed the evening as 6
much as I have, and we'll see you again down the road. 7

Thank you. 8

MODERATOR MILLARD: Thank you. 9

Tooker Gomberg? 10

SUSIE WASHINGTON: He's not here, Vern. 11

MODERATOR MILLARD: Oh, fine. Well, ladies and 12
gentlemen, that completes the list of people who had 13
indicated that they wanted to make a presentation. Is 14
there anyone else that wishes to do so at this point in 15
time? 16

I don't see any hands waving, but 17
I don't see very well anyway. Okay, I take it that 18
there aren't. 19

Well, let me say thank you very 20
much for coming out this evening. I think it's no 21
exaggeration to say this is by far the best session that 22
we've had so far. Personally, I enjoyed all the 23
submissions. I thought they were very reasonable, very 24
helpful, and we appreciate you appearing, we appreciate 25
getting your ideas and look forward to working with you 26

in the future. Thanks very much. 1

MITCH PRONAUGH: With regard to the question 2

period which you mentioned before -- 3

MODERATOR MILLARD: Oh, yes. 4

MITCH PRONAUGH: -- I'm sorry that there hasn't 5

been a question period, I'm sorry that the lazy bastards 6

who we have -- had the data on it and who were on this 7

panel aren't here, and I'm sorry that this has not been 8

a part of the -- in its format, at least, part of the 9

ongoing democratization of our society which we've seen 10

with the AL-PAC Review Board and so on. 11

SUSIE WASHINGTON: Do you have some questions? We 12

can certainly have a discussion. 13

(Meeting ended at 9:15 p.m., Friday, November 16th, 1990) 14

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We, Donald G. Meyer, CSR(A), and Louella Wood, CSR(A), Court
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herein, to the best of our knowledge, skill, and ability.



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Court Reporter

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Transcript of Proceedings

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(Meeting commenced at 7:10 p.m., Wed., November 28th, 1990)

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MODERATOR MILLARD: Good evening, ladies and

3

gentlemen. Let me welcome you to this evening's

4

discussion group for the air quality strategy for

5

Alberta. We are pleased to see that you have come out.

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I haven't seen the weather outside, but I gather it's a

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bit of a stormy night, so we really appreciate you

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coming.

9

DR. SHEPHARD: There never was a storm around

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here. We save that for Edmonton.

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MODERATOR MILLARD: The program this evening will

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consist of a few brief introductory comments that I

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would like to make, and then we'll move on to

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submissions that people wish to make. And, following

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that, if there are other submissions that anyone wants

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to make, we would certainly welcome them, and, after

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that, perhaps we can have some discussion.

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My name is Vern Millard. I've

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been asked to moderate these meetings, and I've been

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asked to make some introductory comments in terms of the

21

problems that we're facing today and what the Clean Air

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Strategy is all about for Alberta. And I might say that

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these comments that I have put together are drawn from

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the fact sheets that have been prepared by the Clean Air

25

Strategy group. And those that haven't seen them, I

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would certainly commend them to you. I personally found
them very interesting when I was reading them and very
informative.

Now looking at just the overview
of the Clean Air Strategy, and, appropriately, we can
start with what is the Clean Air Strategy all about?
And I think we can recognize that our planet today is
threatened by man-made emissions. There is a growing
consensus among informed and scientific people that
emissions must be reduced if we are going to avoid
serious problems with respect to the planet, and the
Clean Air Strategy is a means of encouraging public
discussion with respect to those matters.

The strategy consists of three
main features: Firstly, identifying the important
issues; secondly, developing practical approaches for
reducing emissions; and then thirdly, recommending
policies and programs to the Government that it could
implement.

The Clean Air Strategy is based
upon a four-stage program. The first stage took place
in September of this year when a group of industry,
environmental groups, public health groups, research and
so on got together to discuss the problems and to
identify the key issues and the options. Out of that
came a general consensus on the need to reduce emissions

and to develop a strategy for Alberta. 1

The second stage of that program 2
is the regional sessions that are taking place today. 3
We have had sessions in Bonnyville, Fort McMurray, Peace 4
River, Edmonton. We tried to have one in Pincher Creek 5
Monday of this week, but the weather led us to leave. 6
We'll be going back there later in the month, next 7
month. And then Calgary and Red Deer. 8

The third stage is a summary 9
workshop, at which time the original group will get 10
together and consider the various options and views that 11
have been expressed from the regional meetings. 12

Then out of that will come an 13
overall strategy, which will lead to the fourth stage, 14
namely, a final report which will be available to the 15
public and will represent the recommendations of the 16
group to the Government. 17

Now, what are the major problems 18
that we're facing today? As I mentioned before, there 19
is a growing consensus by research scientists that our 20
planet is under serious strain. An example of the kind 21
of studies that are taking place is demonstrated by a 22
convention that was held in Montreal in November of this 23
year where 700 scientists met to talk about global 24
warming and came to the conclusion that we need to do 25
something drastic to reduce the degree of emissions and 26

the degree of global warming.

There are three main kinds of problems that have been identified. The first one is the so-called greenhouse effect or global warming that I was referring to previously. This is caused by carbon dioxide and other emissions to the atmosphere. Gases trap energy radiated from the earth, and fossil fuels and water are the major sources of greenhouse gases. And the emissions occur in both the production of energy resources and in the use of fossil fuels.

This diagram depicts what happens. Some radiation naturally takes place, but with the buildup of the greenhouse gases, increased radiation -- or increased re-direction of the heat rays comes back to the earth and as a result increases the overall temperature of the planet. Fossil fuels, oil, gas and water are the major sources of greenhouse gases. And I can't read the bottom of it. It's important to recognize that emissions occur in both the production of fossil fuels and also in the use of them. Consequently, we're all involved in this area, because we all use fossil fuels.

A second problem area is acid deposition, frequently called acid rain. This is an issue that's had a lot of publicity over the last decade or so. We've all heard about the problems in Eastern

Canada and Eastern United States. It's caused by 1
sulphur oxides and nitrogen oxides being emitted to the 2
atmosphere. There are substantial sulphur oxides 3
emitted from processing fossil fuels. Nitrogen oxides 4
occur from industrial and consumer operations, such as 5
when we operate our motor vehicles. 6

The third kind of problem is 7
smog. It's not as prevalent in Western Canada, but it's 8
had a good deal of publicity in other areas such as Los 9
Angeles and some parts of Eastern Canada and the United 10
States. And, indeed, in Calgary and Edmonton, you can 11
see the yellow cloud that hangs over the city under 12
certain circumstances. 13

Well, what is being done about 14
these problems? I've referred previously to the 15
extensive research that is going on in various countries 16
throughout the world. The national and international 17
research studies lead to agreements, and there was a 18
sulphur dioxide agreement that was reached in 1985 in 19
which a group of countries agreed to a 30 percent 20
reduction in SO₂ emissions. There was an agreement 21
reached in 1988 with respect to nitrogen dioxide. And 22
carbon dioxide is currently being considered, although, 23
based upon accounts in the newspaper, I understand that 24
the Canadian Government has agreed to a policy whereby 25
CO₂ emissions for Canada would be limited to the 1990 26

levels. And, of course, a major factor of what is being
done to look at these issues is through research itself.

How does Alberta fit into this
overall picture? Well, first of all, we are a major
producer of fossil fuels. Looking at our production
from a Canadian point of view, we produce 83 percent of
the gas produced in Canada, 80 percent of the oil, and
44 percent of the coal. Partly because of that
substantial production, Alberta's share of emissions is
particularly large and substantially greater than our
population share. Sulphur dioxide, we contribute about
15 percent of Canadian total SO₂ emissions. In terms
of nitrogen dioxide, it's 23 percent, and carbon
dioxide, a similar number, about 22 percent. And, of
course, our population share is something like about 10
percent, so we have the highest per capita rate of
emissions.

We also have to remember, though,
in thinking about these rates that Alberta actually
produces fossil fuels for other areas, other parts of
Canada and other parts of the world, in particular, the
United States. In fact, 75 percent of Alberta's oil and
gas is sold outside the province. We also have to
recognize that Canada's share of the world's CO₂
emissions is very small, at 2 percent, and this tends to
emphasize the problem, because the share of each country

is relatively small in terms of the total, and, of 1
course, when you break that relatively small portion 2
down by province, it again makes it that much smaller, 3
and then when you break it down still further by areas 4
within the province or individuals or individual 5
companies, it becomes a very -- almost minuscule. 6

We have to remember that fossil 7
fuels are a very important industry in the province. In 8
total in 1989, they represented about \$15 billion of 9
value of production. 2.4 billion were paid in royalties 10
to the Provincial Government, which represented about 24 11
percent of the Provincial Government's revenue. 12

Now, I think it's important to 13
recognize that we are all involved in this issue. It's 14
not one of those situations where we can point the 15
finger at other people. CO₂ emissions are roughly 16
split one-third by the energy industry, one-third by 17
other industry, and one-third by the public, people like 18
you and I that drive our cars, heat our homes, et 19
cetera. 20

An interesting question that 21
comes out of this whole exercise is what do we mean by 22
"clean air"? I think under normal circumstances, one 23
would mean air that won't cause problems, even though it 24
has some man-made emissions in it, but they won't cause 25
adverse effects on human health, vegetation and 26

materials.

The catch with that definition is that it's short-term. It means the air we breathe today doesn't cause problems today, but it doesn't really deal with the question of the emissions that occur today that have some impact on heating the -- on the greenhouse effect long-term, and the full impact may be two or three or four or more decades into the future. And so one has difficulty in defining "clean air". And, actually, what we have got to do, I think, is to adjust our definition and our thinking in this area so that we include a provision for the long-term effects, such as the greenhouse effect. Thus, even if we assume that Alberta has clean air today under the short-term definition, we still have a problem with respect to the longer term. And what this means is that we must reduce emissions in order to avoid those long-term global impacts.

Naturally, we come to the question of how can we reduce emissions? There appear to be four basic alternatives:

One is to produce less energy. If we stop producing oil or gas or oil sands, we would significantly reduce the emissions to the atmosphere.

We can use less energy, all of us.

Or we can use energy more 1
efficiently so that we still are able to maintain the 2
way we live, that we use the energy that we consume in a 3
more efficient manner, it goes further. 4

A fourth alternative is to shift 5
to non-polluting energy sources, such as wind, solar, et 6
cetera. 7

How can we as individuals reduce 8
emissions? And this really comes to the core of these 9
regional sessions. This is the purpose of having the 10
discussions, because we want to get your suggestions and 11
ideas and advice. 12

In thinking about it, education 13
is obviously a major factor, but then we're still faced 14
with the problem of how do we go about that education. 15

We have the issue of how do we 16
become convinced individually that we must change our 17
lifestyles in order to reduce emissions into the 18
atmosphere? And that's difficult because the impacts 19
are so remote to each of us because of this long-term 20
impact. 21

Now, what policies and programs 22
are required for an effective Clean Air Strategy? 23
Again, I repeat that we are interested in your ideas and 24
suggestions. Some possible developments -- and I 25
believe this is just a potential list -- is we can have 26

new and tighter standards on a variety of areas; we can 1
limit total emissions in a particular area; we can 2
provide incentives to develop new technology so that 3
energy, for example, would be used more efficiently or 4
we would use less energy; we can change the current 5
financial incentives that tend to use more energy; we 6
can expand research. And, of course, the list goes on 7
and on. What we have got to do is to develop a set of 8
objectives, develop a strategy that will permit us to 9
achieve the overall goal of reducing emissions. 10

Now, that, ladies and gentlemen, 11
is just a brief summary of the background, at least as I 12
see it, in terms of this particular issue. What I would 13
like to do is to now turn to the people who wish to make 14
submissions, and then, after we have heard those, then 15
we can open the meeting up for a discussion and comments 16
and see if we can establish some dialogue. 17

The first submission is from Tom 18
Pekoe? Is Tom present? Would you like to come forward. 19
And perhaps use a microphone, if that's comfortable, or 20
you can use this -- fine. 21

TOM PEKOE: Firstly, Canada's record and 22
Alberta's record of air quality is dismal. The United 23
States has had since 1969 a meaningful Clear Air Act 24
with national enforcement. The United States now has 25
the Bush amendments to the 1969 Clean Air Act. Air, in 26

my opinion, in common sense logic, seems to say that it
is not a provincial matter. What we see in Canada is
simply an attempt to confuse the issue by so-called
jurisdictional squabbling, which allows the Federal
Government to do nothing and the Provincial Governments
of course to do nothing.

Somehow, the suggestion or
intimation given by these hearings is, to my mind, an
insult to one's intellect. It seems to me to denigrate
an obvious: Without clean air, clean water, clean soil,
there will shortly be no life as we know it remaining on
earth. This is not a subject that is really open for
argument. It is a fact.

Another fact I would point out to
you, because Mr. Millard mentioned the Geneva conference
on the greenhouse effect, but he failed to mention that
the United States and Canada and Saudi Arabia were
instrumental in torpedoing any concrete recommendations
to come out of that conference. To me, a government
should be leading the people in saving our earth, our
lives, not rushing ahead with earth-killing projects, to
have the electoral consensus of the people who will
eventually force these governments out of office. How
much time do we really have?

But in Alberta, this is not the
case. More polluters are rushed on stream every day.

Just witness the incinerators that are springing up all 1
over Alberta at this particular time, Swan Hills, the 2
original, Trochu, Beiseker, Vulcan, Onoway, Stettler, 3
Medicine Hat. We're growing really more incinerators on 4
the plains of Alberta than we're growing trees, and all 5
of this is being done ignoring the experience of other 6
countries. In fact, when one considers what is done in 7
Alberta vis-a-vis the rest of the western industrial 8
community, one must ask is the ignorance shown by the 9
Government of Alberta just ignorance or strategized 10
stupidity? 11

There are really three types of 12
air. One is the air we're breathing in here tonight, 13
which is an indoor air. The other is the air of the 14
workplace or the workshop. And, of course, then the 15
basic air that fuels -- or gives air for us for a home, 16
and that's the outdoor air. The goal for outdoor air 17
should be a zero discharge with a set time limit on when 18
we have reached the zero discharge. 19

The most primary thing to decide 20
in what to do with our air is to really know what's in 21
it, so Alberta has to have and has to do meaningful air 22
testing at ground level in all areas of our cities and 23
the countryside. To start with, it should purchase some 24
state-of-the-art equipment, such as super-sniffers. The 25
details of these air tests must then be made fully 26

available -- fully available -- to the public on, I 1
would suggest, a toll-free number. Identify the 2
polluters, charge the polluters and convict the 3
polluters, that is, after we learn what's in the air and 4
we draw up standards, stringent standards. But, most of 5
all, clean up the polluters. 6

Clean air, clean water, clean 7
soil is a right of the people. Use the Heritage Trust 8
Fund for hydrogen research and production. Use the 9
Heritage Trust Fund to pay for the installation of 10
pollution-control equipment in stacks that went up 11
before controls and regulations that are stringent were 12
brought in. You can't grandfather an old stack. But, 13
by the same token, I don't think it's really fair to 14
expect industry to pay for their own cleanup. To some 15
extent, yes, but to the other, these stacks were allowed 16
to go up, so I think Alberta has to bear some of the 17
cost for those stacks to be cleaned up. To expect at 18
the present time, as Alberta does, meaningful reporting 19
data from industry on industrial emissions is naive 20
almost if in point of fact it is not criminal 21
negligence. 22

Stop the aerial application of 23
herbicides and pesticides, particularly the spraying of 24
pesticides in Provincial parks. Reduce and control the 25
amount of pesticides and herbicides that inundate the 26

countryside every spring and summer and fall. And, at 1
the same time, aim for the abolition of nitrogen-based 2
ammonia fertilizers. 3

The next air, perhaps one of the 4
most important airs, is indoor air. To show you some of 5
the importance of indoor air, the German Society of 6
Medical Doctors for Occupational Health And Safety 7
considere the most dangerous chemicals that the worker 8
comes in contact with to be the solvents in paints that 9
are of course used in houses. 10

Unfortunately, the problem with 11
paint is just one of the things that exists in a house 12
that really makes it unsafe for human habitation. 13
Panelling emits formaldehyde. The wallpapers emit 14
formaldehyde. Wood studs and beams have been treated to 15
preserve them and to eventually kill the home occupants. 16
Stippled ceilings are sealed with oil-based paints. 17
Carpeting is made from a form of plastic, and as those 18
carpets age and degenerate, they give off a dust, and as 19
that dust is a plastic, it does not break down in the 20
respiratory system. Asthma now kills nine Canadians per 21
week. Asthma has increased 25 percent in the past ten 22
years. Of course, the carpet and the tile is glued down 23
with toxic glue. Below the carpet with the toxic glue 24
is plywood that has been joined together with toxic glue 25
and, of course, treated with wood preservatives. 26

And then there is something that 1
the E P.A., the United States Environmental Protection 2
Agency, is now recognizing as a very sad fact and is now 3
classifying electric blankets as a possible 4
carcinogenic, because electric blankets create an 5
electromagnetic field, as does the microwave oven. 6

And then, of course, outside your 7
house may go a high-voltage power transmission line, and 8
it's now recognized even by I think Health and Welfare 9
Canada that power transmission lines possibly cause 10
childhood leukemia. 11

And then the last thing is think 12
of the flowers that you buy to brighten your home up, 13
and we buy them and we never think that those flowers 14
are absolutely contaminated, by and large, unless they 15
have been organically grown, with herbicides and 16
pesticides. The net result of that would be -- let's 17
take a person who suffers from asthma; they buy flowers, 18
they put them in their house, breathe the fumes out the 19
flowers and suddenly have an asthma attack. No wonder 20
the medical system is totally overstressed, and what 21
really disturbs me is the lack of initiative provided by 22
the medical care system in these areas. I've already 23
quoted from what the German doctors feel. I never hear 24
quotes from Canadian doctors, never. 25

Lastly, radon gas. Again, the 26

U.S. environmental agency says it's a major problem. 1
Sweden considers it a grave problem. Canada says it's 2
no problem. Just as Mr. Beatty (phonetic) three weeks 3
ago said, that there's nothing we can do to reduce 4
dioxins and furans, so we'll ignore them and simply 5
increase the permissible limits of dioxins and furans. 6
This is nonsense. 7

The workplace: If it's an 8
office, it has virtually all the problems of the home 9
with a few more, computer terminals, perhaps 10
asbestos-based ceiling tile, mercury vapour from 11
fluorescent lights. The workshop varies, depending on 12
the trade, i.e., welding, and I think by now we all know 13
the hazards that welders faced through their lives by 14
the gases created at their work. Cabinetmaking shops, 15
they work with particleboard and treated wood, so 16
they're just as toxic. 17

Also in the workplace you will 18
have, of course, tobacco smoking, and then you also have 19
perfume. Now you're going to look at me and say, well, 20
my God, here he goes, he's going to get on perfume now. 21
But you're right; I am. Perfume inserts are deemed so 22
lethal that between 16 and 22 states either have 23
legislation before them or have passed legislation that 24
bans perfume inserts from newspapers and magazines. 25
Perfume today is not perfume; it's a chemical cocktail. 26

It's full of the same solvents that goes in your paint. 1
The result is that they have been found to very, very 2
much inflame the respiratory system and cause migraine 3
headaches. 4

I would also further suggest that 5
occupational health and safety be transferred to the 6
Ministry of the Environment and that they be equipped to 7
test the air of offices and workshops of the province 8
and that the levels of air quality be set at zero 9
tolerance with substantial fines for failing to comply. 10

A side note to home and workplace 11
air quality is the obvious: Hazardous building products 12
must be regulated out of existence. 13

In summation, first let me quote 14
from a report in the Medicine Hat News of November the 15
26th. It was written by Phil Malnichuk (phonetic), and 16
it goes as follows: 17

"The amount of furans and dioxins going up 18
into the air from Medicine Hat Regional 19
Hospital's incinerator is an unknown 20
quantity', says the Hospital's Director of 21
Engineering and Maintenance. 'It's not a 22
standard that's been thought of or checked on, 23
as far as I know right now. If tougher 24
standards come in, a new scrubber may be added 25
to sift out all the solids. The ash is 26

harmless material', he said".

What blase' nonsense. The Beluga
whales -- and we know this for a fact -- the Beluga
whales of the St. Lawrence River are genetically dead
because of dioxins and furans. These substances are
mutagenics. But this is what a hospital will state
about dioxins and furans in the province of Alberta.

Again I'll quote from the
Medicine Hat News, if I may, from the same date. And
this is by Dave Pellecky (phonetic).

"As a result of our calculations, I am
confident that the ground levels of sulphur
dioxide will be sufficiently small so that
there will be no adverse effects on the
environment."

This was in assuring the people
of -- first of all, that Petro Canada's application for
allowance to be granted for an increased sulphur dioxide
emission level would not affect the town of Burstall or
the surrounding countryside. Really, the poignant issue
here is not how much it will affect Burstall but where
those extra emissions of sulphur dioxide will land in
the form of either rain or snow. And then we should
measure the ground levels there, whether it's Montana,
Saskatchewan, Manitoba, Ontario; what goes up must come
down.

Both these reports, I think, the 1
quotes, display an unbroadened, self-centered, 2
self-destructive ignorance. The world cannot afford 3
this type of mega-polluting mentality. No longer we the 4
people can sustain the development of polluting solely 5
based for profit-only industry, governments run for the 6
polluter, by the polluter, elevated -- elected by the 7
people can't go on. 8

For pity's sake, can we not 9
comprehend that, if we have killed the Belugas in the 10
St. Lawrence River, if the eastern forests of Ontario 11
and Quebec and New Hampshire and Vermont, Massachusetts 12
and Maine are dying from acid rain, the forests of West 13
Germany and Czechoslovakia and -- Poland's, I think, are 14
almost gone or dying from acid rain, it's only a matter 15
of time before we die as a race. There's no if, and's, 16
maybe's or but's. 17

But perhaps this is the fate of 18
the human being. Perhaps this is the best thing that 19
ever happened to this marvelous place called earth. 20
But, you know, the problem is that, when we go -- and we 21
are going -- look at what we're taking with us. But the 22
spiders will probably survive. Thank you. 23

MODERATOR MILLARD: Thank you. 24

 Gary Drefs? 25

GARY DREFS: Good evening, everyone. I am 26

speaking to you tonight as a representative of the 1
Canadian Chemical Producers Association and also Novacor 2
Chemicals Limited, who are active CCPA members. 3

The CCPA represents over 70 4
member companies producing a broad range of 5
petrochemicals, inorganic chemicals, specialty 6
chemicals, worth a total of some \$1 billion annually. 7
Industry is highlyly trade-oriented, and about half of 8
its production is export. 9

Within Alberta, the CCPA 10
represents a dozen member companies with assets of \$7 11
billion, employing 6,000 people, with a payroll of 250 12
million. The products manufactured are valued at \$4 13
billion, with 50 percent destined for the export market. 14
Our plant operations are generally well-scaled, our 15
markets global and our competition international. 16

Locally here in Medicine Hat, 17
Novacor Chemicals owns and operates a world-scale 18
methanol manufacturing complex employing 150 full-time 19
employees and spending over \$7 million per year on 20
supplies and services. As well, the contribution to 21
City revenues through property taxes and purchase of 22
utilities is significant. 23

Methanol is one of the major 24
chemical building blocks with a wide range downstream of 25
consumer uses. One new and rapidly growing use for 26

methanol is in the development of cleaner burning motor 1
fuels. This is done through the conversion of methanol 2
to the ethers for addition to gasoline or the direct use 3
of methanol rather than conventional gasoline or diesel 4
fuel. A local example is right here in Medicine Hat 5
where the City has in fact converted one half of the 6
transit bus fleet from diesel to methanol. 7

The CCPA on behalf of its member 8
companies accepts the responsibility of acting in an 9
environmentally-responsible manner and is committed to 10
the responsible development, introduction, manufacture, 11
transport, storage, handling, distribution, use and 12
ultimate disposal of all chemicals and chemical products 13
in a manner which minimizes adverse effects on human 14
health and on environment. The Association supports the 15
inter-dependence of economic and environmental 16
objectives and has also supported the objective of a 17
Clean Air Strategy for Alberta. 18

The CCPA has previously submitted 19
its comments in written form for the panel to read, and 20
I won't reiterate the statements or specific issues and 21
representations described in that briefing. Rather, I 22
would like to outline just three practical initiatives 23
which our Medicine Hat facility has already either 24
completed or is actively pursuing to reduce 25
environmental emissions. 26

Firstly, since 1987, the
proportion of capital spending on plant changes and
improvements related to safety and the environment have
increased significantly. This year, we expect a
safety-environmental spending of 35 percent of our total
capital program. For 1991, this percentage is budgeted
to climb to 55 percent of total capital spending.
Continued significant spending in this area is
anticipated as we strive to reduce environmental
emissions to the lowest feasible level. None of this
spending is required by government regulation. Rather,
it is driven by our own desire and philosophy to operate
plant facilities in an environmentally-responsible
manner and at a level which is better than government
regulation. Important also is the realization that
these activities take careful planning and
implementation and cannot be completed overnight.

Secondly, a significant reduction
in environmental emissions can be achieved with energy
efficiency prudence. The chemical industry has
monitored energy conservation for almost 20 years and
has documented a reduction of 40 percent in the amount
of energy required to produce a pound of product.
Although our Medicine Hat facilities have shown modest
improvement in energy efficiency over the years, the
largest opportunity for improvement comes with design

and construction of completely new facilities. Our 1
first two plants were built and started up in 1975 and 2
'76. The third plant, started up in 1981, operates with 3
20 percent less energy per unit of production than the 4
first two plants. Should our company build a new plant 5
today, a further 10 to 20 percent energy efficiency 6
improvement is certainly feasible. 7

Thirdly, development and 8
application of better science and process technology can 9
reap economic as well as environmental benefits. Allow 10
me to illustrate with one example of our Medicine Hat 11
facilities. Part of the methanol process involves 12
heating methane gas and steam to high temperatures to 13
form hydrogen and carbon oxides. Through process 14
technology development, it's been learned that proper 15
conditional injection of carbon dioxides to the process 16
will increase ultimate methanol production. In Medicine 17
Hat, we purchase by-product carbon dioxide which would 18
otherwise normally go to atmosphere and inject this CO/2 19
into the process. Our development work has shown an 20
increase in methanol production of 3.5 percent -- that's 21
the economic benefit -- and a net CO/2 emission 22
reduction per ton of methanol of 2 1/2 percent -- 23
that's the environmental benefit. 24

Ladies and gentlemen, thank you 25
for this opportunity to comment on a Clean Air Strategy 26

for Alberta, and as a member of the Canadian Chemical Producers Association, along with other stakeholders, we look forward to future opportunities for helping to shape Alberta's Clean Air Strategy.

MODERATOR MILLARD:

Mrs. Swan?

MRS. SWAN:

Thank you, Mr. Chairman. I am

here this evening to make a short presentation on behalf of the Grassland Naturalists, and I'm also a member of a local citizen's committee, which has given me some insight into emissions, particularly for the incinerators.

At this time, we would like to thank the Government of Alberta for holding these hearings, and I do trust that the input from the citizens of Alberta will be acted upon with as little delay as possible, as we are all aware that time is short when we know what jeopardy the planet earth is in. We cannot keep putting off corrective action because of economics. People need clean air to breathe; our medical costs escalate. People need clean water; also the same. And people need safe food.

The advisory panel which has been set up to deal with a Clean Air Strategy for Alberta does say that it is a global problem and that we are aware of, those of us who are reading on the problem. However, here in Alberta, we cannot wait on the rest of

the world. We have to act now and do our little part, 1
because whatever we achieve here in Alberta will help 2
the global scene. 3

The information package which I 4
received has been very helpful, and I would like to 5
thank the committee and/or the department responsible 6
for producing it. And I do have some questions 7
regarding the information in the pamphlets, and perhaps 8
there is a member here who could answer it or somebody 9
representing that particular group. 10

In one of the pamphlets or the 11
booklet, it was estimated the amount of carbon dioxide 12
given off by the burning of fossil fuels in various 13
petrochemical plants, and other findings. Now, most of 14
this carbon dioxide goes into the atmosphere, but I 15
wondered if there are any figures which estimate the 16
amount of this carbon dioxide that can be 17
photosynthesized into plant matter by one hectare of 18
forest in Alberta in one year. I think this would be 19
valuable information, because it would show us to what 20
extent are we out of balance with the environment, 21
because we do burn a lot of fossil fuels here. And 22
perhaps it might indicate that we should leave the 23
forests standing to help rid the environment of excess 24
carbon dioxide rather than decimating them for pulp 25
mills. 26

It was also estimated that -- the 1
quantity of sulphur dioxide given off into the 2
atmosphere by the petrochemical industry and by the 3
burning of fossil fuels. This was also estimated. And 4
I am wondering, isn't it viable and possible to build 5
scrubbing towers that can more efficiently remove 6
sulphur from petrochemical products? 7

Also, talking of sulphur 8
dioxides, the same thing as the first presenter, I was 9
quite surprised that Petro Canada would want to increase 10
the amount of sulphur dioxide which they are emitting 11
from the plant at Empress. I was even more surprised 12
that the people who attended the public meeting would 13
not question this a little more. The fact that they saw 14
this alkali in Saskatchewan really doesn't help the 15
problem as it moves further east or northeast. In fact, 16
as the previous speaker said, what goes up must come 17
down, and if that's the case, it could certainly reach 18
the Canadian Shield and do a lot of damage as acid rain. 19

When talking about sulphur 20
dioxide in the handouts, which is vented into the 21
atmosphere, there was no mention made of the harmful 22
effects of mercaptan sulphur, and in the production of 23
gasoline, mercaptan sulphur can be corrosive. Is 24
mercaptan sulphur part of the sulphur dioxide emissions? 25
I don't know. Can it be formed in any way similar to 26

the production of ozone in the lower part of the 1
atmosphere? And we know now that ozone in the lower 2
level is very harmful. Mercaptan sulphur is known to be 3
corrosive and -- which means it could be harmful as 4
well. There are tests devised for this, and I'm 5
wondering if the petrochemical industry, our refiners, 6
use them, and perhaps if we can update a lot of this, I 7
would like to know that. 8

General questions: I was 9
wondering if the Government of Alberta have any 10
regulations regarding stack emissions? I'm not talking 11
about ambient air emissions. I'm wondering about stack 12
emissions. I think it would be important for them to 13
put them in place if they don't have them. 14

And also, in the material which I 15
read, there was quite a lot of talk about the objectives 16
which Alberta is hoping to reach, but there were no 17
dates given, and I really think this is a big loophole, 18
because we can't keep on putting it off forever while 19
industry decides to come around and be more 20
environmentally friendly. We should have dates there, 21
and the Government should be quite strict in seeing that 22
industry adheres to them, to the new objectives. 23

In this handout, it mentioned 24
that there would be a hearing into other emissions at a 25
later date, and I would specifically like to know when 26

the hearings will be held to do with emissions from
hospital incinerators and hazardous waste incinerators,
especially since our hospital here has decided to become
the regional incinerator area for hospitals in this
area, and we know that they burn a lot of plastics which
produce furans and dioxins, which are very, very
harmful.

And the other reason I would like
to have these fast-tracked, as the jargon goes, is
because there has been some talk of a possible expansion
of the hazardous waste at Swan Hills. If I lived in the
Swan Hills area, I would really be upset. The other
thing is, gee, I wish they would change the name of Swan
Hills to something else. I don't know whether they had
it first or I had it first, but it's kind of tough for
me.

For particular recommendations to
the Government, I really think our Government has to
lead by example, and I can't say that I really feel
they've been leading by example in any area up to now,
but I hope they will prove me wrong.

The fleet trucks: Maybe
something specific which the Government has for both its
workers and its use. Perhaps they should consider
changing over from gasoline to natural gas or propane or
methanol, which are less harmful to our environment. I

feel that all publicly-owned buildings that the 1
Government has in Alberta should be environmentally 2
friendly. And I really feel that they are very wasteful 3
on electricity and this is one area in which they could 4
show the rest of us how we should be. I feel also that 5
any buildings which the Government has now or which they 6
may be intending to build, that they should look at 7
solar heating if it can be incorporated into the design 8
and in fact make sure that it can be incorporated into 9
the design. 10

I think that the Government of 11
Alberta should put some money into research, probably at 12
the university level, but I do feel that industry should 13
be encouraged to set up their own research funds for 14
this area. In fact, I was thinking that maybe our 15
Government should make it mandatory to industry that 16
they have such a fund before they even give them a 17
licence to operate. 18

The Government spends a fair 19
amount of our money on public relations. A lot of this 20
money is to tell us not specifically what to do with our 21
environment, and one specific area that they have cut 22
the funding in which I have found -- I think it's a 23
false economy -- is in the area of what was called the 24
economy fuel calculator, which we could all have picked 25
up at our gas stations over the last couple of years, 26

which was very good for motorists so they could keep 1
their mileage, their gasoline and work out if they were 2
getting good gas mileage or not. Well, recently, they 3
have not been available at the gas stations, and when I 4
inquired of the Government, I was told that their budget 5
has been slashed drastically and they couldn't afford to 6
put these out anymore but if you go to the bother of 7
phoning on the right number, perhaps they will send you 8
one. I think this is a false economy and perhaps some 9
of the advertising that they do in newspapers, they 10
could be well directed to having this economy fuel 11
calculator available at gas stations; that is, until we 12
all change over to natural gas or propane or something 13
that is better for our cars. 14

Finally, I would like to say that 15
we must not forget that small is beautiful and this is 16
really for our province as well as for the world. We in 17
fact should be trying to be sustainable in our own 18
province and not always thinking that we have to get 19
bigger and better and grow, because our earth cannot 20
stand it. Thank you very much. 21

MODERATOR MILLARD: Thank you. Are there other 22
people that would like to make a submission? Yes, sir? 23

DR. SHEPHARD: Our lady asked a question. Would 24
she like the answer now? 25

MRS. SWAN: Yes, I would. 26

DR. SHEPHARD: I worked out -- or I got from 1

Alberta Forests and Wildlife the area of forest required 2
to convert carbon dioxide back to cellulose. I forget 3
the number, but what I think it worked out to was, per 4
power plant of the city of Medicine Hat, .3 percent 5
growth will average out at 150 megawatts over the next 6
25 years, okay? And the forests, evergreen forests 7
required, the carbon dioxide emitted from that plant 8
back to cellulose would stem from here to the 9
Saskatchewan border and here to the American border. 10

MODERATOR MILLARD: With respect to your other 11

questions, Mrs. Swan, I'm not sure if anyone wishes to 12
comment at this time. If not, what I would suggest that 13
we do is to -- I think the Clean Air Strategy people can 14
perhaps get back to you and answer at least some of 15
them. I'm not sure if they can answer all of them, 16
because some of them are rather broad, but certainly 17
we'll try our best to endeavor to answer those. 18

Now -- yes? 19

DR. SHEPHARD: Perhaps I could be helpful on the 20

sulphur dioxide, being a Petro Canada person. The 21
process for removing hydrogen sulphite from the natural 22
gas required, if you burn a little bit of it, you get 23
sulphur dioxide, which it shoots back and it attacks the 24
hydrogen and then pure sulphur and water. So then if 25
you have water and you drain off the liquid sulphur, and 26

all the noxious gases are gone. So by taking hydrogen 1
sulphite and reacting it and then feeding it back on 2
itself, then, in theory, there should be no murky 3
deposits whatsoever. And on the mercaptans, sulphur 4
dioxide and sulphur dioxane (phonetic). 5

MODERATOR MILLARD: Thank you. Now, does anyone else 6
wish to make a submission? Yes? 7

DR. SHEPHARD: I have a six-page document, but I 8
would like to say one or two things -- 9

MODERATOR MILLARD: Why don't you come up and -- 10

DR. SHEPHARD: -- that I consider important. 11

Well, in 1972, we had the so-called energy crisis, which 12
was not an energy crisis at all, it was a balance of 13
payments crisis, because the price of energy, petroleum, 14
was put up that high and some countries had difficulty 15
buying it. 16

But the result of that was our 17
Federal Government decided that we're going to save 18
energy, and so what they did was decrease the 19
compression ratio of the auto-cycle engine, the gasoline 20
engine. Well, this engine operates better when -- it 21
operates more efficiently when it operates at higher 22
compression ratio. So what the Government has done is 23
decreased the compression ratio of the engine, made the 24
car less efficient, forced us to use smaller engines at 25
a higher speed that wear out more quickly, and I 26

couldn't think of anything more backwards that could 1
have been done in the history of man, but our Federal 2
Government did it. 3

Now that we're onto the concept 4
of small engines, we over-inject into diesel engines so 5
that we get black smoke coming out. So what's the cure 6
for that? As these engines are only run 17 percent 7
efficient, rather than using electrical energy, which 8
from a thermal plant is developed at around 34 percent 9
efficiency, and using a trolley bus, here we use diesel 10
buses with engines that are too small, and by 11
over-injecting, then we put out black smoke and carbon 12
particulates. 13

And so the cure to this is to go 14
and use methanol. Well, methanol is made from methane 15
gas, which has an energy of 23,650 b.t.u.'s per pound, 16
and we convert it to methanol, which has a value of 17
9,600 b.t.u.'s per pound, so we throw away 14,000 18
b.t.u.'s of energy and two of the worst polluters 19
identified, carbon dioxide and water, to add to the 20
environment directly. And I don't consider this as 21
being particularly smart neither. And yet in 1972, we 22
have the first action, and it was just this year that 23
Jake Epp flew out here to Medicine Hat and announced 24
that millions of dollars will been spent degrading 25
energy because of a problem that the Federal Government 26

created in the first place.

Now, if we're going to use energy, then we're looking at applied thermodynamics and we have to look at temperature in minus temperature out divided by the temperature in to find out the efficiency of what we're doing. And this pretty well forces us into using co-generation and into a gas turbine at about 2000 degrees Fahrenheit, out at about 1500, 1400, into steam boilers, out again at 1150 degrees Fahrenheit, out at, what, 100 degrees, into greenhouses, and we have used the energy. This figures out at about 65 to 70 percent efficiency. And yet we have had a power plant down here that's been operating for years and years at 19 percent efficiency and it's up to 30 percent now.

The Energy Resources Conservation Board has just approved coal-fired generating plants and denied permission for Medicine Hat to expand their plant into a co-generation facility, and so I was simply pointing out that we're going backwards just about as fast as we can go. That's it.

MODERATOR MILLARD:

Thank you.

Does anyone else wish to make any comments?

Let me ask you a broad question: From what you have read before you came to the session this evening and from your own knowledge and from

hearing what people have been saying, how many of you 1
believe that there is a greenhouse effect problem that 2
we are facing? Could you perhaps just raise your hands, 3
those that subscribe to that. 4

It looks like most people agree 5
with that proposition. What would you suggest as a 6
means of reducing emissions of carbon dioxide? Do you 7
have some specific suggestions that might be changed? 8
Yes? 9

GRETTON SWAN: I would say that education would 10
be very important, the school process. I am of the idea 11
that we should, instead of teaching the ordinary 12
algebra, calculus, et cetera, we should teach more 13
statistics and more probability so people are -- can do 14
a graph and know -- be able to observe trends. We are 15
programmed, and it is not to observe trends, only to 16
observe things that happen suddenly. And because we are 17
so mentally programmed, that we're not aware of what's 18
happening. So that's why I thought I would mention 19
that, possibly I think changing our curriculum to be 20
much more statistics-oriented. Calculus and -- they are 21
just as good and just as important as English would be, 22
as the other forms of materials. 23

MODERATOR MILLARD: Other thoughts on that subject? 24
How many would be prepared to 25
change lifestyle in order to reduce emissions? 26

Again, a pretty general response. 1

What do you think should be the driving force in terms 2
of changing lifestyle, some kind of financial incentives 3
or is it a moral proposition or what do you -- 4
guidelines or education or -- 5

GRETTON SWAN: Reduction of newsprint. 6

MODERATOR MILLARD: Pardon me? 7

GRETTON SWAN: Reduction of -- by the media of 8
newsprint, of papers, the large paper. This is just one 9
thing. But paper in our garbage dumps is a major 10
problem. One-page advertising, reduce -- or put a tax 11
on items like that. Reduce the amount of coloured 12
paper. If you burn these papers, often you get a flame 13
which is green or crimson maybe, and I'm getting tired 14
of having that -- the reduction of paper is one way that 15
we could go about it, which is harmful to us. 16

MRS. SWAN: And it would benefit our forests 17
in the process. 18

MODERATOR MILLARD: Do you subscribe to financial 19
incentives or disincentives or taxes or higher charges 20
for some kinds of products? Is that -- 21

MRS. SWAN: Are you talking about financial 22
incentives to industry? 23

MODERATOR MILLARD: No, I was thinking in terms of 24
consumers. 25

MRS. SWAN: Consumers? A tax is probably 26

better.

1

MODERATOR MILLARD: Pardon me?

2

MRS. SWAN: A tax would be better.

3

MODERATOR MILLARD: A cost rather than to --

4

MRS. SWAN: Yeah.

5

MODERATOR MILLARD: Yes?

6

RANDY MARSHALL: Perhaps an incentive to maybe be

7

more -- to convert our vehicles to run on natural gas or

8

propane. As this gentleman said, that it's more

9

efficient to use methanol than other forms of fuel,

10

especially gasoline. We know and we have proved that we

11

can efficiently run a lot of heavier types of vehicles

12

on natural gas, and the engines seem to have worked just

13

as well, burned the fuel longer, maybe not as powerful,

14

but you still have to reduce the speeds on the highways

15

anyway and then maybe still use those kinds of methods

16

as well. But it's quite a costly situation to get into

17

and it won't be overnight, but I think the Government

18

might be able to help us out on that.

19

TOM PEKOE: When I lived in New York City, I

20

never used my car. When I lived in Toronto, I never

21

used my car. When I lived outside of Toronto in

22

Ontario, I used my car once a week. Then I came here.

23

This is not designed for people to live; it's designed

24

only for -- to serve to work and produce money. We have

25

become a consumer, and that's your whole society, and

26

that's what's wrong. 1

I'd have to drive a hundred miles 2

a day, so two days a week, I don't drive anywhere. So 3

it's -- in the west -- well, okay, Medicine Hat, as 4

Dr. Shephard says, should be running its stupid buses on 5

electricity. Copenhagen does it, Toronto does it, 6

Stockholm does it, but not Medicine Hat. We would 7

rather have these mega-monsters belching fumes, never 8

arriving on time, and killing the environment at the 9

same time. That would be a great step, wouldn't it? 10

MRS. SWAN: But how do you produce the 11

electricity without causing pollution? That's -- 12

TOM PEKOE: Dr. Shephard said that. 13

MRS. SWAN: That's pollution. 14

MODERATOR MILLARD: Yes? 15

GRETTON SWAN: I would like to see incentives, 16

tax incentives, to virgin industries be reduced and 17

instead of giving a huge amount for the paper industry, 18

for instance, and building of plants -- anything that 19

starts from scratch with nature should be reduced, and I 20

can see bigger incentives towards recycling programs, 21

and right now it's the very opposite. 22

MODERATOR MILLARD: Yes? 23

DR. SHEPHARD: I would say that, for the answer 24

to your question, or one of them, the pleasure of 25

gaining a higher education and using it and achieving 26

the effects, whether you become a biologist or an 1
engineer or a chemist, this becomes life's delight, to 2
participate in something of excellence and to develop 3
your personal excellence. 4

So I guess my suggestion would be 5
we don't really need Government incentives. Let's get 6
the Government to stand out of the way and let the 7
people show what excellence they have. This is just a 8
challenge. Every time you go to a meeting like this, 9
there are people who are more than enthused about the 10
possibility of doing something proper for our 11
environment, and so it's a matter of listening to 12
people. It's a pleasure to contribute. 13

MODERATOR MILLARD: Yes, Mrs. Swan? 14

MRS. SWAN: In reaction to that, I have to 15
say that I elect the Government so I have some say in 16
the people who are in the Government and I really depend 17
on the Government to put in place regulations and 18
policies and legislation that will control those private 19
individuals who perhaps want to produce, pollute, 20
without any consideration for the environment. The fact 21
is I really don't particularly trust industry. 22

MODERATOR MILLARD: Other comments on this subject? 23

GARY WOLOSHYNIUK: I just have a question for the 24
last speaker. How do you develop trust for industry? 25

MODERATOR MILLARD: Sorry, I can't quite hear you. 26

GARY WOLOSHYNIUK: What does industry have to do to 1
gain people's trust, in addressing the last comment? 2
Does anyone have an answer how 3
the industry can gain people's trust? That's a major 4
problem. 5
MODERATOR MILLARD: Perhaps the exchange of 6
information is as important a matter as any, 7
discussions, communications and -- so that all sides 8
understand what the other side is doing and trying to 9
do. I think a lot of distrust stems -- from my own 10
experiences, a lot of mistrust stems from not 11
understanding or not having the information. 12
Frequently, the other people are not quite as bad as we 13
think they are and et cetera. 14
Yes? 15
TOM PEKOE: Could I just go back to that 16
question for a minute, how would you power the electric 17
buses? I live on the top of the Cypress Hills. The 18
fields out there are only used once a year to grow, a 19
lot of them grass, and I'm looking at wind mills in 20
Pincher Creek. 21
Twenty years ago, the city of 22
Medicine Bow, Wyoming was powered -- Medicine Bow, 23
Wyoming, with a population of 5,000 people, at that time 24
the population and then it dropped because the oil boom 25
was over, in the region around Medicine Bow were three 26

wind mills, three wind mills, and yet the city of 1
Medicine Hat wants to burn natural gas and electricity. 2
This is absolute nonsense. 3

Now, okay, industry -- industry 4
and trust, there is an example. The gas industry wants 5
you to use gas, the oil industry wants you to use oil, 6
but for the past twenty years, they have done nothing 7
but try to decimate all the efforts of solar producers, 8
wind producers and hydrogen producers. And that's why 9
people don't really trust industry, except the 10
shareholders, because they have to have a profit. The 11
shareholder is not willing -- and maybe we just have to 12
convince the shareholder, because they don't help you, 13
they're dying too. But the shareholder wants their 14
blood. That's why they bought shares. So how do you 15
blame the CEO of Exxon when the Valdez piles up on the 16
rocks? He's only doing what the shareholder wants him 17
to do. 18

MODERATOR MILLARD: Gee, I can't agree with that. I 19
don't think any shareholder wants a Valdez experience. 20

TOM PEKOE: Sir, I would really disagree, 21
because the environmentalists on the West Coast were 22
trying to tell the shareholders of Exxon what would 23
happen when they went from a double-walled tanker to a 24
single-walled tanker regulation, and the shareholder and 25
the CEO did not listen, and the Government didn't 26

listen.

MODERATOR MILLARD: Well, I think we quite just disagree. Yes, Mrs. Swan?

MRS. SWAN: Medicine Hat is one of the areas which has a lot of sunshine, and about ten or fifteen years ago, we were trying to get some seed money from the Government to set out on solar research. Well, it collapsed because we couldn't get any money out of the Government for that. Now, if the Government is serious about other forms of energy, perhaps they could fund some research into solar energy in the city of Medicine Hat, which gets a lot of sunshine hours.

MODERATOR MILLARD: Any -- yes?

DR. SHEPHARD: In my engineering career, I started out with the C-I-L explosives plants in Calgary, and I learned my machine design from Neil McNaughton (phonetic) with a grade 3 education, a mechanical design genius. He held most of the patents for the packaging of hydrochlorides, around the world for Imperial Chemical Industries.

I next went to Edmonton, and Imperial Chemical Industries had a representative going to Edmonton to find out what those crazy Albertans were doing, and they were taking the ideas back and selling it around the world as British technology.

I observed the same thing when I

was the chief engineer for Dominion Glass of Montreal 1
with the Dominion Glass plant here in Redcliff; when I 2
took their machines to the United States, the ideas were 3
taken off and used as American inventions. 4

And I see that Albertans have the 5
ability and the desire to do these things, and yet I 6
find that, with my project trying to get the Dominion 7
Glass plant going again, I had a member of the 8
legislature phoning the United States trying to get 9
competent people to come and run the glass container 10
factory, when we are the people that took Dominion Glass 11
earnings from 86 cents a share to \$1.24 and 12
distinguished ourselves. We've got a problem in the 13
province of Alberta when people think that intelligence 14
and competence is elsewhere. And we're a dying society 15
until we get some changes, and political lying on top. 16

There is a lot of competence here 17
that can take wind power and develop it, solar power and 18
develop it. This Medicine Hat and Lethbridge area is 19
one of the United Nations sites for the development 20
of -- or the production of wind power in the world, and 21
yet when you write a letter to the City of Medicine Hat 22
wanting to use renewable energy here, they won't even 23
answer the letter. And when we want to take the city of 24
Medicine Hat power plant and double the efficiency of it 25
so that it will become one of the engineering dreams on 26

the North American continent, you don't get to first 1
base. We have an attitude problem in Alberta with the 2
status quo. 3

MODERATOR MILLARD: Yes? 4

TOM PEKOE: You know, if I may just dwell 5
upon this for a minute, you see, let's go back to 6
business. Business is TransAlta. Business in the case 7
of electricity in Medicine Hat is the City; it's 8
government, but it's business as well. 9

Now, there is no reason why the 10
Government could not fund each individual homeowner to 11
put in their own solar installations. Now, this would 12
probably clash with the Medicine Hat beauty laws, 13
because they don't like satellite dishes, but I think we 14
could make an exception in this case. But, you see, if 15
the Government would fund people to put in their own 16
solar installations, then allow the people to pay the 17
Government off as they pay their electric bill right 18
now, think what we would be saving. 19

MODERATOR MILLARD: Other suggestions or comments? 20
Yes? 21

DR. SHEPHARD: Our power plant here for years 22
has kept the river clean of ice. That's wonderful. Yet 23
we burn natural gas. 3,000-degrees-plus Fahrenheit is 24
the temperature within the flame, and, 25
thermodynamically, we should be using processes so that 26

we're using 2500, 2400, 2300, 'til we're right down to 1
70 degrees Fahrenheit, what we want, probably the most 2
useful use of natural gas that we can possibly get. 3

And so I don't know the economics 4
of it, but if we have a hot water line coming out of the 5
power plant or a smaller power plant to feed a small 6
area and people use heat pumps, take that low-quality 7
heat from the power house and to heat their homes, then 8
return the cold water to the power plant, then we don't 9
upset the ecology of the river. 10

And if we should look at -- or 11
drive into Calgary, it becomes pretty desperate now when 12
you pull in fairly close and you see this black mass in 13
front of you with a brown cap on it, that by heat pumps, 14
using electricity generated in a much more intelligent 15
fashion than the brute force of a furnace, that this is 16
a possibility for the future, if we can get our thinking 17
machines going. 18

MODERATOR MILLARD: Other comments or suggestions? 19

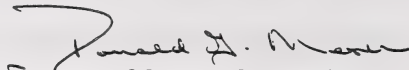
Well, perhaps this is the time 20
when I can say thank you very much for coming out. We 21
appreciate your suggestions and comments and will have 22
regard for them, and you will hear the outcome in due 23
course. Thanks again for attending our meeting. 24

(Meeting ended at 8:30 p.m., Wed., November 28th, 1990) 25

26

COURT REPORTER'S CERTIFICATE:

I, Louella Wood, CSR(A), Court Reporter, hereby certify that
the foregoing pages contain a true and correct transcription
of my shorthand notes taken herein, to the best of my
knowledge, skill, and ability.


For Louella Wood, CSR(A)
Court Reporter

CSR(A)

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Transcript of Proceedings

Appearances:

Court Reporter

Transcript of Proceedings

1

(Meeting commenced at 7:10 p.m., Wed., December 5th, 1990)

2

MODERATOR MILLARD:

Well, good evening, ladies and

3

gentlemen. Let me say on behalf of the Clean Air

4

Strategy people welcome to this evening's discussion

5

group.

6

The -- well, first of all, before

7

we start, the group is small, so why don't we all come

8

forward and sit so that we can be a cohesive group.

9

We're all pretty friendly, so there aren't any problems.

10

My name is Vern Millard, and I've

11

been asked to moderate these regional sessions. I might

12

say that we've been in a variety of localities

13

throughout the province, Bonnyville -- and I probably

14

won't get this list correct but -- Bonnyville, Fort

15

McMurray, Peace River and Pincher Creek, which we never

16

quite got to because of a storm, and Medicine Hat, and

17

tomorrow we go to Red Deer, and Edmonton. And the whole

18

purpose, of course, is to get the public's reaction to

19

the questions that face all of us in terms of problems

20

in relation to the planet.

21

I've been asked to provide some

22

introductory remarks, and I would like to make some

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comments, but first of all before making them, I would

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like to say that the source for the material that I am

25

drawing on in terms of these comments -- assuming that I

26

can see the screen, and I'm not sure about that, but 1
I'll try, and -- but the source for the comments is the 2
fact sheets that Energy and Natural Resources and 3
Environment, the two Government departments that are 4
involved in this, have put together to address these 5
various issues. I spent a weekend going over the 6
material a few weeks ago, and I was really very 7
impressed with the documents and the fact sheets, and I 8
would really commend them to you in terms of looking at 9
them and reading them and digesting them in terms of the 10
issues that face us today. And let me just summarize 11
some of the reactions I took from looking at those 12
documents. 13

Well, we start, really, with the 14
question of what is the Clean Air Strategy? And, 15
basically, as I'm sure you all appreciate, that the 16
planet has increasing problems with regard to the 17
circumstances on which we all live. And here's where I 18
run into the problem; I can't see very well. There's a 19
growing consensus among scientists and people who really 20
investigate these matters that emissions must be reduced 21
in order to solve some of these problems, and the Clean 22
Air Strategy is a means of encouraging public discussion 23
by all of us in terms of these questions. The Clean Air 24
Strategy will identify the most important issues. It 25
will develop practical approaches for reducing 26

emissions. At least, that's the whole theme of the 1
exercise. And it will recommend policies and programs. 2

The Clean Air Strategy for 3
Alberta is a four-stage process. The first stage 4
occurred in September of this year when a group of 5
involved parties got together and discussed the various 6
questions relating to developing a clean air strategy 7
for Alberta. The group identified the basic problems 8
and -- what does it say, Susie? -- there is a general 9
consensus of the need to reduce emissions and -- and 10
what? 11

SUSIE WASHINGTON: And develop a strategy. 12

MODERATOR MILLARD: Develop a strategy. I should 13
have somebody else reading this. 14

The second stage is what is 15
really going on right now, the various regional meetings 16
that we've been holding throughout the province. 17

Then the third stage is a repeat 18
of the workshop in which the people that are involved 19
will get together and consider what has come out of the 20
regional meetings and what has evolved since the 21
original workshop. 22

And then, finally, out of this 23
whole process, we'll develop a program or proposals for 24
the Government. 25

The next question that really 26

arises in terms of this whole issue is what are the
major problems? And, as I said before, they relate to
the growing consensus that we have a problem with
respect to emissions.

And there are really three basic
problems that have been identified. The first one is
the so-called greenhouse effect or global emissions --
or global warming, sorry. And this is caused by carbon
dioxide and other gases being emitted into the
atmosphere, and as a result of this, the energy
emanating from the earth is re-directed back to the
earth and we end up with the so-called impact of global
warming.

And I'm not sure if any of you
have seen the long-term mean temperatures for the earth,
for the planet, but you will notice if you have that
there is this gradual in fact rather significant
increase in mean temperatures for the planet. And it's
really caused by the kind of schematic that is shown
here in terms of the buildup of greenhouse gases and the
re-direction of the energy radiated from the earth back
to the earth.

Now, the second issue is acid
deposition. We have heard a lot about this particular
problem, particularly those of us in Alberta, with
respect to acid rain and the question of SO₂ emissions

from sour gas plants and NOx emissions from automobiles 1
and so on. It's a significant problem in the world. It 2
relates more in a sense to Eastern Canada and Eastern 3
United States, but it's a factor that is prevalent in 4
Alberta or is a factor in Alberta, and it's one of those 5
issues that is a global issue. 6

The third problem is smog. It 7
probably isn't nearly as -- I don't think there's any 8
"probable" about it; it isn't as serious a problem in 9
Alberta and the Prairies as it is in some other parts of 10
Canada and the United States. We have heard about it in 11
relation to the West Coast of the United States, Los 12
Angeles and so on, and it's certainly prevalent to a 13
degree in Eastern Canada, Toronto, the St. Lawrence 14
Valley area, and in the B.C. area, and even in Alberta 15
we have problems, as we've all seen in relation to 16
Calgary and to Edmonton. 17

What is being done about these 18
issues? Well, first of all, of course, there's a lot of 19
research that's going on. And there are international 20
conventions that are being held to address the issues. 21
The question of sulphur dioxide was addressed in 1985 -- 22
is that the right year? 23

SUSIE WASHINGTON: Yeah. 24

MODERATOR MILLARD: And nitrogen dioxide, in terms of 25
an agreement, in 1988. Carbon dioxide has just been 26

acted on in 1990, in November 1990. And in addition to 1
that, there is research going on. But all of them 2
relate to reducing the emissions to the atmosphere. 3

And one might well ask how does 4
Alberta fit into this total scene? Well, first of all, 5
in terms of energy production, as we all know, Alberta 6
is a major source of energy for Canada and indeed for 7
North America. In terms of Canada, Alberta accounts for 8
83 percent of gas, about 80 percent of oil and 44 9
percent of coal. And that's in terms of actual 10
production, not reserves. 11

If you relate that to Alberta's 12
share of the emissions, then in terms of SO₂ -- and I 13
should be standing back so that you people can see -- in 14
terms of SO₂, Alberta contributes about 15 percent of 15
the total. In terms of NO_x and CO₂, it's about 22 or 16
23 percent of the total. So from a Canadian standpoint, 17
Alberta has the highest per capita emission rate for all 18
of the provinces in the country. Our per capita share 19
is roughly about 10 percent. 20

In terms of Canada's share of the 21
CO₂ production, it's about 2 percent, but we also have 22
to recognize that energy production is a major factor in 23
terms of the economic fortunes of Alberta. Roughly 24
speaking, the energy industries produce about \$15 25
billion of goods and services. In terms of royalties to 26

the Provincial Government, it's about 24 percent of the 1
total, which represents about the same amount of the 2
total provincial revenues. 3

In terms of what happens to the 4
energy that's produced in the province, again, as I'm 5
sure you all appreciate, about three-quarters of the 6
energy that's produced here is exported or shipped out 7
of the province to other parts of Canada or to the 8
United States. So, really, in many ways, one can judge 9
or assess the contributions to emissions from Alberta's 10
point of view in terms of what it is doing for other 11
areas. So, in a sense, three-quarters of the emissions 12
that stem from the production of energy really relate to 13
supplying other parts of Canada and North America with 14
energy resources, energy products. 15

In considering this overall 16
question of emissions to the atmosphere, which is really 17
the source of the problem, we have to recognize that 18
we're all involved in this. Roughly speaking, and 19
thinking particularly in terms of NOx and CO₂, the 20
energy industry accounts for about one-third, other 21
industry accounts for another third, and then you and I 22
as consumers account for the other third. It may be 23
through the products we consume directly or indirectly, 24
but we are a major factor in the equation. 25

And another question that 26

inevitably arises when we talk about this issue is what 1
do we really mean by "clean air"? If we look at it from 2
a relatively narrow point of view, we would say that -- 3
I think it's fair to say that we would probably conclude 4
that clean air is air that doesn't contain contaminants 5
that would have a negative impact on our health or the 6
health of our children or vegetation or animals. 7

But when it comes to a question 8
like global warming, which is a long-term effect or can 9
be viewed as a long-term effect, that definition really 10
doesn't fill the bill, because it really deals with the 11
current situation. And if we were to assume -- and I 12
suspect that some people here might not accept this 13
assumption -- but if we just for the sake of argument 14
assume that Albertans are blessed with clean air today, 15
then the problem we have is that that clean air today 16
may in 50 years or some other length of time from now be 17
judged as really being not clean air because of the 18
emissions it contains in terms of the overall impact on 19
the atmosphere. So we have to bring into the equation 20
this time factor that looks not just at today's world 21
and today's conditions but over the longer pull. 22

Now, how can we reduce emissions? 23
And, of course, the basic assumption in terms of this 24
question is that we need to. And there are really four 25
main alternatives to reducing emissions: 26

The first one is to use less 1
energy, we just stop -- let's see, is that "produce" 2
less energy? 3

SUSIE WASHINGTON: Yes. 4

MODERATOR MILLARD: Sorry, produce less energy. You 5
have to put up with me, ladies and gentlemen, because I 6
don't see well. But if we produce less energy, we, for 7
example, could stop producing gas, we could stop 8
producing oil, we could stop producing oil sands and so 9
on, and that would make a major impact in terms of the 10
emissions that occur. Of course, it would have lots of 11
serious consequences, but that would be one way of doing 12
it. 13

Another way we could achieve that 14
goal is to use less energy, each of us. We could drive 15
our cars less; we could heat our homes to a lower 16
temperature; we could do all of these things that would 17
mean that we would use less energy. And, again, if we 18
did that, we would have less emissions. 19

We can use energy -- the energy 20
we use more efficiently. We could have better 21
refrigerators; we can insulate our homes better; we can 22
do all of those things that would permit us to have the 23
same kind of quality of life, but we wouldn't use as 24
much energy. 25

And, finally, another alternative 26

is that we can use different kinds of energy. We can 1
use solar energy or wind power, biomass, et cetera. 2

So there -- but when you look at 3
the alternatives that are available to us in terms of 4
reducing emissions, these are the four fundamental 5
alternatives that are there. 6

And then we come to the next 7
question of how we as individuals can reduce energy -- 8
or reduce emissions. Remember I mentioned that 9
one-third of the CO₂ and NO_x emissions really emanate 10
from we as individual consumers. And that really -- 11
that question is really the basic core of these regional 12
meetings. The essence of these meetings is to get your 13
views, your thoughts, as to how that might be achieved. 14
There are, of course, a variety of measures that might 15
be taken. Education is certainly an important feature. 16
But we really want to get your input, and I hope that we 17
will during the course of this evening's session. Now, 18
what does that say? We appreciate your -- we're looking 19
forward to your suggestions. 20

And some possibilities in terms 21
of searching for ways of achieving a reduction in 22
emissions are, for example, making the standards more 23
rigid or more demanding; limiting total emissions in a 24
particular area so that perhaps there is only a certain 25
amount that will be emitted in say the general Calgary 26

area; and providing incentives to reduce emissions. And 1
there's a long list of things that can be done, and 2
that's why we're having the meetings, so that we can get 3
your views on that, and I hope that there will be a 4
variety of views expressed tonight. 5

Well, without further ado, what I 6
would like to do is to call upon people who have 7
volunteered to make submissions for this evening's 8
discussion. After we have heard from those that have so 9
volunteered, we will see if there are questions, and 10
perhaps we can have some discussion and see if we can 11
arrive at some useful answers. 12

Now, the first person is 13
Mr. Barkauskas. May I ask Wayne Barkauskas to come 14
forward. Would you like to use that -- 15

WAYNE BARKAUSKAS: Sure. 16

MODERATOR MILLARD: Or whatever would be convenient 17
for you. 18

WAYNE BARKAUSKAS: Good evening. Firstly, I would 19
like to thank the Commission for allowing my group to 20
speak on such short notice. I'm with the Environmental 21
Law Group at the University of Calgary. We're a group 22
of students and faculty who have gotten together to 23
investigate and do submissions such as this on 24
environmental policy, as well as work on specific 25
environmental cases that may be working their way 26

through the courts at any particular time.

My submission tonight is a paper of large volume, as you can see. I will try and condense it into about ten minutes. It focuses on reformation of Alberta's automobile emission policy. I'll go through each jurisdiction firstly in Canada very quickly to show what other jurisdictions have instituted, and then I'll come back to Alberta and mention what we have or don't have.

Firstly, let's start with B.C. They prohibit the sale of automobiles unless certain environmental emission standards are met. They also state that a vehicle cannot be on the road if it's producing an unreasonable amount of smoke.

Manitoba, P.E.I., New Brunswick, Nova Scotia and the Northwest Territories also have this in their legislation, that a vehicle can't be on the road if it's producing an inordinate amount of smoke, and they each have their standards as to what is inordinate.

Ontario probably has the strictest standards in Canada. It has standards for both new and used vehicles, but in order for the vehicle to come under the scrutiny of any inspection, the owner must first be directed by the police to go to an inspection station, and if they don't meet certain

standards, then they receive a fine of some sort. 1

Quebec has just set provisions 2
for certain standards and inspections of motor vehicles, 3
but, as of yet, they have not instituted any standards 4
under regulations. It's more or less in a state of 5
flux. 6

Now we come back to Alberta. We 7
have absolutely nothing. We don't have any restrictions 8
on how much smoke a vehicle can produce. It can produce 9
as much smoke as is possible from a vehicle that is 10
running, and there's nothing against that. We don't 11
have anything against disconnecting emission control 12
devices, which some other provinces do. In short, we 13
haven't addressed the problem at all. 14

It's trite commentary to state 15
that automobile emissions is a very large source of air 16
pollution, even in Alberta; anytime that a chinook blows 17
in, you can see that. It's destroying the ozone layer. 18
It has dangerous health effects to individuals. This 19
has all been proven scientifically. I don't want to 20
bring up scientific studies, because that was not the 21
purpose of what we set out to do. What we instead tried 22
to do was look at every jurisdiction in North America 23
and looked at all of the emission standards and in turn 24
drafted legislation for Alberta, taking all the best 25
things and leaving out all the worst things from each of 26

these jurisdictions.

I actually -- I have a copy of it here. It's contained within our report, along with different legislation from each of the jurisdictions in North America. I will try and briefly cover what we have believed is important to include in such legislation.

First of all, diesel and gasoline engines produce different emissions, so we have divided it up so that diesel vehicles have different standards than gasoline vehicles. Also, the statute as it stands here provides incentives for cleaner burning fuels.

We have included specific smoke standards that can be tested. In other words, if a police officer is driving down the road and he sees smoke, there is a very simple device that he can use to measure how much smoke is coming out of that vehicle and whether or not it meets standards for a ticket.

There are included in here standards for idling a vehicle, which many U.S. states have decided to include, because most emissions occur from a vehicle when it's idling, so limit the idling of the vehicle and you cut back on emissions. Of course, there are certain exemptions included for trucking, for buses, et cetera.

There's a prohibition on removing

emission control devices from vehicles, which we think 1
is absolutely mandatory. It's rather surprising that it 2
hasn't been included previously. 3

Incidentally, I should mention 4
right now that this is not the field of the Federal 5
Government. The Federal Government up until now has 6
instituted certain standards on new vehicles, in other 7
words, when they leave the showroom, they have to meet 8
certain emission requirements, but one year down the 9
road, if the owner has decided not to keep up his 10
vehicle and never get a tune-up, well, obviously, that 11
vehicle will no longer meet those standards, it won't 12
even come close. 13

What we have decided to do is 14
institute an annual inspection for vehicles, and it 15
would coincide with the registration of the vehicle. 16
So, in other words, the owner would go into an 17
inspection station, pay a very small fee, have the 18
vehicle inspected, and then with that certificate, he 19
could have the car registered or re-registered in 20
Alberta. 21

There would be an exemption for 22
older cars that couldn't possibly meet the standard. We 23
have set a limit of 11 years, because from all the 24
research that we have done through the various 25
jurisdictions, it appears as though 11 years ago is 26

approximately when stricter standards came into force. 1
That way, owners of older vehicles could keep the cars 2
on the road. 3

The owner would take the vehicle 4
to an inspection station. If it failed the inspection, 5
the owner would have one month to repair the vehicle. 6
And because of the way that the Act is set up, the 7
inspection should be done 90 days prior to registration, 8
so if the vehicle fails, they still have one month to 9
have the vehicle re-inspected. 10

If the vehicle fails again, the 11
second inspection -- let me correct that. If it fails 12
the first inspection and the owner goes and discovers 13
that it's going to cost a significant amount to repair 14
the vehicle so it meets standards, we have decided to 15
set a certain limit of money to be spent on the vehicle 16
on repairs, apart from getting a tune-up on the vehicle. 17
That limit we have set arbitrarily at \$75, but whatever 18
would be a reasonable amount. That could be changed. 19

In that case, the vehicle would 20
be taken in, it would have a tune-up done on it. If it 21
was determined that more than \$75 worth of repairs had 22
to go into the vehicle, the owner would spend the \$75 23
and then would be exempted for one year from meeting the 24
strict standards of the emission policy. 25

When you sell your vehicle, of 26

course, you have to have it re-registered. The cost of 1
the inspection would go to whoever is selling the car, 2
because, in that way, the person who is buying the 3
vehicle would be assured that it met all the standards 4
and they wouldn't be buying a vehicle that, of course, 5
they wouldn't be able to drive. 6

In Ontario, the stations for 7
doing the inspections are all government-run. I would 8
submit that that is a rather costly way of doing things. 9
It would be much easier to keep costs down if you 10
licensed private stations to do the inspections. It's 11
done in California, and the way to avoid problems with 12
fraud, et cetera, is to legislate that tamper-proof 13
equipment, testing equipment, should be used to test 14
vehicles, and it would give simply a pass/fail reading, 15
and, that way, the consumer could be checked. 16

Also, the cost would be regulated 17
by the Government. I don't think that garages would be 18
too upset at keeping the price low, because people would 19
come in and anyone who had a vehicle that didn't meet 20
the standards of course would have to have repairs done. 21
So it's also an incentive for the garages. 22

Of course, there is also a long 23
list of licence requirements for the garages, et cetera 24
and for the specific equipment that would be used. But, 25
other than that, I think I've kept it within ten 26

minutes.

1

Are there any questions? Maybe I

2

haven't clarified something or there are concerns out

3

there with a program like this. I don't see any.

4

MODERATOR MILLARD: Thank you, sir. That was very
good. I appreciate that.

5

6

WAYNE BARKAUSKAS: Thank you.

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MODERATOR MILLARD: The next person is Peter
Proudlock.

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9

PETER PROUDLOCK: Good evening. Is this one
working? Great. I'm not going to take ten minutes; I'm
going to go about seventeen, if you'll indulge me. I
tried to get this one fairly short, but we've got a
pretty good topic.

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As I said, my name is Peter
Proudlock. To simply state my credentials in making a
presentation here this evening to the Alberta Clean Air
Strategy are these:

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My company is CH/4 International
Limited, and we work with methane gas as an alternate
fuel source for coal seams, coal mines, land fills, et
cetera. I graduated as a geologist from the University
of British Columbia, and my experience in the field of
methane has been for over the past ten years.

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Some of our recent work has also
included investigations into emissions of fugitive

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methane into the atmosphere for the federal/provincial 1
joint task force. Earlier this year as Canada's invited 2
industry representative, I attended the 40-country 3
international workshop on methane emissions from natural 4
gas systems, coal mining and waste management systems 5
sponsored by the U.S. Environmental Protection Agency 6
and the Environment Agency of Japan held in Washington, 7
D.C. for the U.N.'s inter-governmental panel on climate 8
control. Our work continues to be involved with methane 9
recovery and emission control. My presentation tonight 10
will address atmospheric emissions of methane, its 11
effect and some suggestions for a reduction. 12

The earth when viewed from space 13
has a very thin, fragile atmosphere protecting us from 14
solar radiation and its effects on us. Man's activities 15
over especially the last century has dramatically 16
altered the chemical makeup of the atmosphere. 17

For example, we have measurements 18
of the atmospheric concentration of CO₂ and methane 19
since about 1750, and not only have concentrations been 20
steadily increasing but the rate of increasing has also 21
been accelerating. In 1988, the World Resource 22
Institute estimated that 18 percent of the man-made 23
contribution to the greenhouse effect comes from methane 24
gas, and that's a different figure than you'll see in 25
the sheets that have been sent out. 26

Although the contribution of
carbon dioxide at 49 percent is greater than that of
methane, the growth rate of methane, 1 percent annually,
is twice that of carbon dioxide.

Since methane is about 60 times
as damaging to the atmosphere as CO₂ by weight -- and
that's about 20 times by volume; I'm rounding these
numbers -- and has a mean residence time of ten years
versus two or three for CO₂, then a considerable effort
should be given to reduce atmospheric emissions and
maximize the utilization.

The United States Environmental
Protection Agency in 1990 released findings that
indicate that the reduction of methane has a far greater
effect on slowing global warming, especially for the
short-term, where the impact is about 120 times that of
CO₂ by weight. The man-made emission of fugitive
methane comes from such major sources as coal mining,
petroleum and natural gas industry, land fills, waste
water, animal wastes, land use changes and rice
production. Although rice production is definitely not
a consideration in Alberta, the other sources are to
varying degrees. These sources are controllable to some
extent, and, as such, control would assist in the
reduction of the greenhouse effect.

Okay, methane emissions from coal

mining here: Almost all coal contains gas which is 1
produced as part of the qualification process. This gas 2
is predominantly methane. 3

Most methane within coal is 4
absorbed. Therefore, the amount of gas that can be 5
contained within a coal reservoir greatly exceeds that 6
which would be contained within a conventional reservoir 7
under similar conditions, and, as such, the pressure 8
within the coal is also lower. Only a small amount of 9
free gas is situated within the porosity, which is in 10
equilibrium with the absorbed methane. 11

Once the pressure is disturbed, 12
the de-watering caused by mining -- as -- when 13
de-watered, the free gas is released, and the absorption 14
then starts to proceed. 15

The volume of gas in coal which 16
is emitted when mined is dependent upon the rank and 17
depth. And, by rank, if any of you don't know -- it's 18
not that clear -- we've got low, brown coals, lignite, 19
as are found out in the prairies, shown in the reds and 20
oranges. The higher-ranked coals, as we get into the 21
mountains, that are more higher -- high in carbon 22
content are the yellows to the top. The depth is shown 23
across the bottom and the gas content up the side. This 24
is a guideline when looking for this. 25

Since much of Alberta's coal 26

production comes from shallow, lower-ranked plains 1
coals, the emissions are not expected to be high per ton 2
of coal, but almost 20 million tons are mined annually. 3
Presently, coal mined in the mountains -- and it's about 4
10 million tons a year -- is reported to be not overly 5
gaseous, but coal in some areas of the province is very 6
gaseous. Besides the gas within mined coal, any gas 7
contained within adjacent seams and rocks that is 8
disturbed by the mining will be released, and this 9
amount often is much greater than that within the coal 10
that is recovered itself. 11

Our work has indicated that 12
Canada emits about 500 million cubic meters of methane 13
per year from 70 million tons of coal mined. We have 14
not precise emission figures for Alberta, but Alberta 15
mines considerable coal -- and that was shown earlier; 16
it's over 40 percent of Canadian production -- and a 17
proper testing program to ascertain the quality of 18
methane emission needs to be conducted. Methods exist 19
to economically pre-drain gas prior to mining. Where 20
this is possible, the gas should be captured and 21
utilized. 22

Another benefit of refining the 23
technology to recover this gas from coal mining is that 24
the technology is required world-wide, especially in 25
developing countries where we would have a valuable 26

export of technology. World-wide, about 4 1/2 billion 1
tons of coal are mined annually, and from this we 2
estimate that 81 billion cubic meters of methane were 3
emitted in 1988, and that's approaching double what some 4
other estimates are. Although Canada's share is less 5
than 1 percent of this, it is important that we are 6
progressive and indicate to the world that we are 7
serious about reducing emissions. 8

The developing world, especially 9
China, for instance, relies heavily on the coal 10
industry. China has recently stated that for at least 11
the near 20 to 30 years, they will be increasing their 12
coal output. In that China alone accounts for one-third 13
of the world's emissions from this source and this will 14
increase, it is imperative that the developed countries 15
such as Canada develop the technology to both recover 16
and utilize the gas which is so damaging to the 17
atmosphere. The Soviet Union and Poland, as you can see 18
here, are also large emitters and potential technology 19
customers. 20

The U.S., which ranks second, is 21
currently collecting a considerable amount of methane 22
and making money doing so. They are expanding their 23
collection systems, which are mainly surface 24
pre-drainage wells. Canada has the ability to excel in 25
underground system designs. This cartoon shows just a 26

number of items that we have looked at. Given proper 1
technology and the will, we estimate that 50 percent of 2
emissions from coal mining can be economically 3
recovered. 4

Okay, moving on to emissions from 5
natural gas systems: Alberta has a strong natural gas 6
industry. Indeed, about 85 percent of Canada's 7
production comes from this province. Over 100 billion 8
cubic meters of natural gas are produced annually. The 9
provincial average methane content is 81 percent or 10
about 85 billion cubic meters of methane. About 2 11
billion cubic meters or 2 percent is listed as flared. 12
Not all of this is actually flared; some is lost as 13
fugitive methane. Although we have no data, we have 14
estimated that perhaps 5 percent or 100 million cubic 15
meters is vented as fugitive methane emissions. Much of 16
this could probably be recovered. 17

In areas of the world where older 18
distribution systems are in use, there is leakage that 19
is unaccounted for, but Alberta's systems are new and 20
the quality of repair and maintenance is high, so this 21
loss is minimal. Most losses occur in testing flaring 22
of solution gas, et cetera, and also plant shut-downs 23
and things like this. This is certainly an area that 24
needs evaluation. 25

This is, however, only the amount 26

that is originally metered or from the well head to 1
burner tip. There is no accounting for gas lost from 2
oil production, surface and other leaks and/or from 3
wells, for instance, that have long been since abandoned 4
but are leaking. Some companies are currently facing 5
high costs trying to control gas leaks, especially in 6
areas of the plains where rock is poorly consolidated. 7

The technology of geophysical 8
logging is second to none in the world. We have the 9
capability of measuring leaks of less than 1 cubic meter 10
a day. Another area of concern is where a leak behind 11
the casing from a deeper, higher-pressure reservoir has 12
been flowing up the well bore and into another higher 13
lower-pressure zone. Given a long and large enough 14
leak, especially if the same problem exists in a number 15
of wells, then this zone will become over-pressured, and 16
eventually this gas will migrate to the surface and 17
enter the atmosphere as fugitive methane. It is also a 18
drilling hazard. 19

The technology to measure these 20
leaks has been developed in Alberta. We know that these 21
types of leaks exist. We do not know the magnitude. 22
The implication: That the natural gas industry is 23
unwittingly emitting a considerable volume of undetected 24
fugitive methane. This area most certainly needs to be 25
evaluated, for with any move to switch to natural gas, 26

drilling and emissions will increase. We are faced with 1
the fact that, if fugitive methane leaks exceed about 1 2
percent of production, then the advantage in reducing 3
carbon dioxide and the greenhouse effect is lost. 4
Therefore, we must know how serious this problem might 5
be and how to reduce or eliminate it economically. 6

We'll move on to land fills. And 7
I've not been in a habit of taking too many shots of 8
that, so there's my shot. The generation of methane as 9
part of the decomposition of organic wastes in land 10
fills is well known. Up until the early '70's, however, 11
it was considered a nuisance at best and a hazard at 12
worst. The makeup of land fill gas is about 50 to 60 13
percent methane, the bulk of the rest being CO₂. In 14
many areas, this gas is being recovered at a profit. No 15
such operations currently exist in Alberta. I do not 16
have accurate numbers for the province, but considerable 17
research has been done world-wide. 18

For instance, a New York site of 19
600 hectares 12 meters deep was shown capable of 20
producing 1.1 billion cubic meters of 55 percent methane 21
gas per year for a minimum of eight years. This 22
research also includes work into the upgrading and use 23
of gas as is, which has -- they have found has the same 24
corrosion characteristics of natural gas but with less 25
NO_x and carbon monoxide emissions. A detailed study is . 26

necessary before an estimate of the quantity of fugitive 1
methane from land fills in Alberta that can be captured. 2
The number of sites, their sizes, composition and the 3
distance from markets needs to be addressed. 4

Waste water systems: Anaerobic 5
digestion of municipal waste water has been in use for a 6
century. This process produces by-products such as 7
methane, carbon dioxide and hydrogen sulphite. The 8
methane gas is easily captured and used. Alberta is 9
currently doing well in some jurisdictions in this area. 10
For instance, the city of Calgary's Bonnybrooke plant 11
generates about 30,000 cubic meters of methane per day 12
from a flow of about 400 million litres of sewage. 13
About 80 percent of this is captured and utilized for 14
heating and electricity generation for peak shaving. 15
Base load displacement has not been economic. When I 16
last visited the plant about a year ago, expansion of 17
the capture and usage facilities was underway to improve 18
only 80 percent. Detailed studies of all Alberta 19
treatment plants should be undertaken to ascertain if 20
methane recovery of the smaller plants can be economic. 21

This is emissions from animal 22
waste: Again, the anaerobic digestion of animal manures 23
has been demonstrated to be an effective resource 24
management tool. The system is effective in reducing 25
pathogen and nutrient levels in the manure and in 26

preserving the water quality in streams. Methane gas is 1
a major by-product of the process. On farms, capture 2
systems do not need to be high-tech to be effective and 3
a medium-calorific-value gas is generated for use by the 4
animal husbandry facility as heating gas or for 5
electrical generation. We have no figures currently for 6
Alberta, but a recent U.S. study indicated about 30 7
billion cubic meters of biogas could be produced 8
annually in the States. Investigations into the use of 9
such systems under Alberta's conditions are worthwhile. 10

Okay, we get emissions from land 11
use changes: In many areas of the world, large 12
quantities of methane are emitted as the result of land 13
use changes, such as deforestation, drainage of swamps, 14
et cetera. Alberta is not a large contributor to this 15
area, but certainly when pulp mills and dams are 16
planned, changes must take place. The magnitude of such 17
changes and the effect these changes have on the 18
emission of methane as well as carbon dioxide needs to 19
be looked at. It may be that these effects are minimal, 20
but we certainly lack credibility in criticizing other 21
areas of the world, especially deforestation in other 22
countries, when we are doing the same thing here. We 23
need hard numbers to back up arguments on what the 24
differences are. 25

Looking into other sources, our 26

work has identified some sources of fugitive methane 1
emissions in Alberta, but there are certainly others 2
that detailed studies will reveal. Automobile exhaust 3
is one such source. In reducing fugitive methane 4
emissions, all areas need to be investigated. If we 5
simply concentrate on a single large source, we may be 6
missing a much larger overall abatement by harnessing a 7
number of lesser sources. 8

In concluding here, I've 9
discussed a number of areas of fugitive methane 10
emissions which are controllable to varying degrees. I 11
am most knowledgeable of coal mining emissions, to a 12
lesser extent in the area of conventional natural gas 13
systems, and plead near ignorance in the other areas, 14
but our research into methane emissions in one area has 15
led to some knowledge in others. 16

I have come here tonight to bring 17
some light on some areas of concern, areas needing 18
investigation, and perhaps ideas for further research. 19
Work we did earlier this year has given us the estimates 20
shown here of recovery by industry segment in Canada. 21
In some areas, a guess only has been made. Because 22
Alberta is an energy-rich province, we will probably be 23
able to recover somewhere about a quarter of the 24
Canadian total. Looking at that, we have made 25
reduction -- recovery on natural gas to half of that, as 26

the slide was made.

1

Additionally, switching to methane from higher hydrocarbon fuel sources, especially oil and coal, has other advantages in reducing the greenhouse effect. For example, coal gives off about twice the amount of CO₂ per unit of energy recovered, as does methane. This fact, that methane is such a clean fuel, gives rise to the prediction that public pressure will create a demand and a rise in price, possibly doubling within this decade, even without any other outside influences.

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I trust I have presented some new information on fugitive methane emissions from man-made sources. Hopefully through sensible investigations and research, economic solutions to the reduction of these emissions through the capture and utilization can be found. As in the case of early efforts to eliminate a hazard from coal mining, it has been found that the methane itself is valuable. Hopefully the same can be said of the recovery from other industry segments.

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Another comparison might be how valuable sulphur is in Alberta -- and to think that sour gas was once flared -- and for the Government and the people of Alberta to consider long and hard the consequences of not investigating and doing all we can to protect our fragile atmosphere. This is a small

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planet, and we all must do our fair share to protect it. 1

The cost of not doing so may be beyond our means to pay. 2

Thank you. 3

MODERATOR MILLARD: Thank you very much. 4

The next submitter is Eugene 5

Gawor. 6

EUGENE GAWOR: Good evening. Mr. Chairman, 7

ladies and gentlemen, it is a real pleasure for me to be 8

with you tonight to share our common concern about clean 9

air. 10

We all need clean air to breathe, 11

to live, but are we really serious about clean air for 12

us, for new generations to come? Don't wait. Use 13

technology, new and modern technology; implement new 14

strategy into Clean Air Act and Environment Protection 15

Act. 16

It is fortunate now these days 17

that there is more appreciation and understanding for 18

the environment, for clean air, but, at the same time, 19

the area which I would like to emphasize, for the energy 20

efficiency, energy conservation. There is no cheaper 21

barrel of oil or any unit of energy from energy we save, 22

we conserve. 23

Improved energy efficiency is a 24

driving force in abating air pollution, at least, should 25

be, in helping to clean the air, the environment. It is 26

hard for me, for the environmental, I believe so, and 1
also for the energy conservation specialists to agree 2
with some politicians who still think that pollution is 3
cheap but at the same time Clean Air Act, clean air at 4
all, and efficiency is very expensive. They believe 5
that the only way to reduce the pollution, to reduce the 6
pollution from the power plants, is to raise consumer 7
price to pay more in order to install scrubbers. In 8
order to substantiate my statement and wrong thinking by 9
the politicians, I am going to give you some numbers. 10
The best is to give the numbers of someone else. In 11
this case, I am going to give you the numbers from the 12
United States. 13

1988 pollution, that is, emission 14
of the sulphur oxide -- oxides, was over 20 million ton, 15
nitrogen oxides almost twenty thousand -- million tons. 16
Presently, according to the new Environmental Protection 17
Act of the United States, they are going to reduce the 18
emission of the sulphur oxides by 10 million ton and 19
nitrogen oxides by 3 million ton per year. The Bush 20
Administration is going to spend about 90 million ton, 21
but some members of the Congress are already allowing 22
and crying almost that it will cost almost 80 to over 23
\$100 billion per year. 24

But the other side of the coin 25
is, which I will tell you also, the cost by not doing 26

anything is over \$100 billion. And, at the same time, 1
the cost of running -- more efficiently use energy, it's 2
more than military budget, which is about \$10,000 per 3
second, what is coming to over \$300 billion per year. 4
However, already the industry United States, they saved 5
over 150 billions by improving the efficiency since 6
1974, the first oil crisis, and also at the same time by 7
reducing the emission of the sulphur and nitrogen 8
oxides. 9

Another example to improve 10
efficiency I am going to also -- to give you right now. 11
By using today's technology and apply them properly to 12
residential, commercial and industrial facilities, we 13
can save over 75 percent of all electricity in Canada, 14
25 percent on lighting, 25 percent on drivers, and 15
another 25 on the rest. About 16 percent is using for 16
the lights. By replacing incandescent lights by 17
fluorescent, we save already about 75 percent 18
electricity, which means the bulbs, 75 watt, we can 19
replace by taking one bulb to have the same light. At 20
the same time, of course, they last, on average, 13 21
times as other light bulbs. There are some other ways 22
to -- also to improve the lighting, but them I am not 23
going to talk to. In Canada only by just using today's 24
technology in lightings and use the most efficient 25
lights, we can save about 8,000 to 9,000 megawatt and, 26

at the same time, no additional cost; because of the 1
maintenance and the time, the cost is below zero. 2

Unfortunately, there is still in 3
Canada and United States some industries -- electrical 4
in the city is growing comparing to countries like Japan 5
or West Germany and in general the West Europe, and this 6
would be like steel, pulp and paper, gas, oil and cement 7
industry. Since 1974, Western Europe and Japan, they 8
reduce dependence on oil in half, but our dependence has 9
gone up, because those countries were keeping gas prices 10
high through special taxes, realizing that energy 11
efficiency, energy conservation was important and is 12
still important. And that's the reason why right now we 13
have that oil crisis, why we're hostages of the Arab 14
countries in the Persian Gulf. 15

I strongly believe and will pray 16
to God as a consultant, as an engineer, for politicians 17
to have a vision of clean and efficient Canada we all 18
would like to have, to see, and also for the 19
decisionmakers to implement this act, because I strongly 20
believe that's the only -- one of the best way is to 21
improve the efficiency. 22

My presentation was just a few 23
words like introduction and my remarks, and second part 24
is just what is affecting -- what are the barriers to 25
improve energy efficiency? 26

The first one is just lack of 1
information, awareness, what really we are missing. 2

Another is just attitude, 3
attitude all of us, attitude industry, and especially 4
the senior management for the power generation who still 5
believe that they are in business to sell more, but we 6
on other side as the customers would like to have less 7
but at the same time the quality. Utilities all over 8
the country, they don't spend too much money on the 9
research/development; in my case, just efficiency. The 10
numbers are like ten to one, just by expanding the 11
network of the power supply. 12

Another one is the lack of the 13
specialized services and especially by the Government, 14
because they don't have offices with responsibility for 15
designing and implementing the energy efficiency and 16
long-term conservation. And also on other side, 17
enterprises, the companies, they don't have any -- not 18
all of them, but they don't have special energy 19
management departments or even offices or persons to 20
look after it. 21

Another item is just technical 22
know-how, which particularly is important in this case 23
for the Government and people with the right attitude. 24

Next one is profit. Utility 25
companies are making more by selling just more 26

electricity.

And the last one, in my case, is the payback guff. Customers have at least ten times the time value of money that the utilities have. If we invest in energy savings, we would like to have the return in one or two years, but if we don't invest, unfortunately, the utilities, they have to provide budget to build new power stations, and, of course, the return for them is 20, 25 years. And, in this case, we shouldn't compare a two-year -- one-, two-year payback with 20, 25 years, because this will cause the misallocation of the budget and -- by starving some other sectors of the industry, by selling more non-efficient equipment.

And now the final, which is the most important for here, is the recommendations. I believe that some were raised already by people, but still I am going to repeat my recommendations:

The most important, I believe, to start, is the education and promotional programs, and this has to start from -- primary schools has to be educated properly, the industry and people involved, and particularly the Government.

Review and revise the list of advisory group members, the one which we got with the submission. It is unfortunate that that list is

including some representatives who will be in conflict 1
with their own company policy on which they might be 2
making profit. And, at the same time, I believe the 3
list should include really promoters of the clean air 4
and energy conservation and energy efficiency. I would 5
advise also to include more members who -- whom I didn't 6
see, like from the Alberta Energy Conservation, people 7
who already are just -- it's a branch of the Government, 8
and others which -- like energy management programs 9
which were run but unfortunately no longer exist. 10

The next one which I would like 11
to emphasize also as a recommendation is the promotion 12
of engineering ethics, attitude and achievements in the 13
area of environment and increased efficiency and energy 14
conservation. We all should be aware what people in 15
this area are doing. And, formerly, the engineers were 16
considered the heroes of the modernization and the new 17
life. Unfortunately, right now, they are the villains 18
in the age of the environmental concern. 19

Revised royalty charges and 20
taxes: Royalty charges should be reviewed. Presently, 21
Province is charging a royalty for gas which is sent to 22
the pipeline, but it's not charging any taxes for gas 23
wasted, gas flare. 24

Pollution prevention strategy, 25
which will be the shift from control and cleanup to 26

prevention of the pollution to have healthy economy, to 1
have healthy industry and people. 2

Least-cost approach to control 3
emission. The cheapest approach to control emission is 4
to increase, again, efficiency by what I mentioned about 5
the lights, and the same would apply to motors and our 6
appliances the Chairman already mentioned. 7

Promote national and 8
international importance of energy conservation. And 9
here we just should follow the world leaders like 10
Sweden, Japan, Holland. 11

Review and re-examine subsidy 12
programs for energy producers by considering again the 13
importance of the energy efficiency. 14

A research and development 15
program still to improve our technology, despite what I 16
said before, how much we can already improve the 17
efficiency by using the present technology, but this is 18
very important to be competitive in the world. 19

Tax breaks on the 20
environmentally-friendly products. Energy efficiency 21
audits, technical assistance and training programs. And 22
all this I believe presently is run -- is both sponsored 23
by the energy -- Minister of Energy but should be by the 24
environmental -- Minister of the Environment. 25

Another one, the profits of the 26

utilities companies shouldn't be as a function of the 1
supply but should be as a function of demand, customers' 2
demands. 3

And my last recommendation is 4
about foreign aid for developing countries which have 5
the least efficient technologies, least efficient 6
industries, that should be taken into account the very 7
important technology and very efficient equipment in 8
order to help them. Thank you. 9

MODERATOR MILLARD: Thank you very much. 10

Judy Bennett? 11

JUDY BENNETT: Good evening. I'm here on behalf 12
of the Athabasca Tribal Corporation, which has a brief 13
that I would like to present. 14

The Athabasca Tribal Corporation 15
represents Indian bands located within the Athabasca 16
drainage within Northeastern Alberta. These bands 17
consist of Janvier, Fort McMurray, Fort McKay and Fort 18
Chipewyan. Air quality issues have been subject to 19
continuing debate in the northeastern sector of the 20
province of Alberta since Suncor began oil sands mining 21
operations at Tar Island north of Fort McMurray in the 22
late 1960's. Since that time, major developments, such 23
as Syncrude Canada Limited and a recent proposal for 24
Canstar Oil Sands Limited, Alsands Limited, AOSTRA and 25
the OSLO Project, have focused attention of our Native 26

peoples and the community of Fort McMurray on the issue
of air quality management within this region.

In the past five years,
significant progress has been made in dealing with air
quality problems in this region through the formation of
the Fort McKay Interface Committee and the Regional Air
Quality Coordinating Committee known as RAQCC. These
committees have allowed us to address air quality
through the development of an Air Quality Protocol,
reassessment of regional air quality monitoring systems,
and the re-evaluation of sources of noxious emissions
from the existing mining and upgrading facilities. We
believe that these initiatives represent a major
breakthrough in approaches to licensing, approving,
monitoring and conducting research on air quality.

Several principles which we
believe are essential to the improvement and maintenance
of good air quality in our region are described. Many
of these principles have been developed through
discussions of the committees noted above and through
mediations sponsored by the Energy Resources
Conservation Board with Suncor, Syncrude and OSLO.

There's six points that I would
like to make that deal with these principles. The first
one concerns existing levels of emissions. The Alberta
Air Emissions Inventory completed under the direction of

the Acid Deposition Research Program in 1987 indicated 1
that SOx and NOx emission sources for the Fort McMurray 2
region were by far the highest combined point-sources in 3
Alberta. These levels of emissions indicate that this 4
region of Alberta is subject to significant depositional 5
loadings from air pollutants and, should future 6
developments occur, will probably continue to be 7
subjected to at least these existing levels for the 8
medium to long-term. Little research of quality was 9
used in the ADRP Program that is available to us to 10
predict long-term effects from these loadings. It is 11
also noted that the oil sands developments are very 12
long-term sources of emissions, and as noted in Picard 13
et al. (1987), and I quote: 14

"A ranked listing of the ten highest SO₂ 15
sources in Alberta by emission region and 16
ecoregion is presented in Table 8. Two oil 17
plants dominate the list, accounting for 355.8 18
(tons per day) of SO₂ emission, or 19
approximately 28.1% of the total provincial 20
SO₂ inventory.... Total SO₂ emissions in 21
Alberta are therefore dominated by a few large 22
sources rather than by many smaller sources." 23

Given this background, the 24
Athabasca Tribal Corporation considers that our region 25
of the province should be recognized by the Government 26

of Alberta as unique in its long-term exposure to
atmosphere pollutants. The magnitude and number of
major point-sources of SOx and associated emissions
dictate that enhanced monitoring of and attention to
atmospheric pollutant loadings be recognized on a
continuing basis.

The second point details with
maximum pollutant loadings. The Athabasca Tribal
Corporation considers that the regional pollutant
loadings of Northeastern Alberta are presently at a
maximum rate and total loadings should not be allowed to
increase. We do not accept that pollutant loadings
based on an arbitrary value for deposition in terms of
kilograms per hectare are a satisfactory long-term
management strategy for the region. Instead,
depositional loadings must reflect the total amounts of
pollutants which are being emitted to the air. We also
note that significant long-term research is required in
order to verify the acceptability of existing pollutant
loadings in the region. These depositional standards
must be subject to public input.

It should be clearly recognized
that the Athabasca Tribal Corporation considers that,
from this date forward, the total emissions in this
region should decline, irrespective of future
developments or projects in the oil sands mining arena.

This means that existing facilities will have to reduce
their emissions and that future plants will have to
substantially limit their total emissions.

The third point details with air
emissions on a per unit production basis. The Athabasca
Tribal Corporation considers that emission limits should
be tied to units of production at oil sands mining
facilities. This implies that air emission limits
should be tied to ongoing technological improvements.
It also indicates that standards should not be set for
the facility but rather for the technology for oil sands
mining plants.

We note that Suncor presently
emits a much higher level of SO₂ on a per unit
production basis than Syncrude or the proposed OSLO
Project. The Athabasca Tribal Corporation suggests that
government should consider the adoption of standards for
emissions that reflect a consistent
emission-to-production ratio rather than one based on
site-specific or plant-specific technological limits.

This also indicates that
technology is significantly improving for the control of
SO_x emissions in the oil sands mining region and that
there is a need to constantly reassess regulatory limits
which are set for existing and future facilities. We
would also suggest that there is a strong role for the

governments of Canada and Alberta to participate 1
actively with industry in the development, installation 2
and evaluation of enhanced pollutant control 3
technologies for the oil sands mining industry. 4

The fourth point pertains to 5
research requirements in Northeastern Alberta. While 6
the existing base of data does not indicate that 7
regional impacts from acidifying pollutants have as yet 8
been detected, there are ample indications that 9
site-specific impacts have occurred. 10

The Acid Deposition Research 11
Program focused heavily on emissions in Southern Alberta 12
and did not examine in detail the northern, boreal 13
forest region on the province. Without information on 14
emissions in the north, the province of Alberta cannot 15
adequately address the long-term consequences of acidic 16
deposition. A joint industry and government research 17
program should be considered to assess potential 18
long-term impacts in Northern Alberta. 19

The Athabasca Tribal Corporation 20
considers that this research initiative, which could be 21
focused through a committee such as RAQCC, should 22
involve all the parties at interest in the region, 23
including aboriginal peoples. 24

Regional interim target loadings 25
will have to be verified by this long-term research 26

program and the findings will have to be factored into
any future development of loadings which are set for the
region.

The fifth point pertains to the
Regional Air Quality Coordinating Committee model, the
RAQCC model. The Athabasca Tribal Corporation considers
that RAQCC represents a model which should be carefully
examined by the Alberta Government for future
application elsewhere in this province. Through the
RAQCC model, local participation between Native,
government, industry and community representatives can
be focused into a problem-solving forum which properly
recognizes the interests and limitations of each party.
The RAQCC also provides an open forum for the exchange
of technical information between the parties within a
structured and pro-active setting.

The RAQCC has demonstrated that
long-term cooperation between government, industry and
local peoples on air quality management is productive
and can lead to resolution of long-standing highly
charged issues. The Athabasca Tribal Corporation
believes that this position would be endorsed by
industry and government as well.

The sixth and final point,
experimental pilot projects for air emission control.
The Athabasca Tribal Corporation believes that the

Alberta Government should establish on a priority basis
an AOSTRA-type agency which will have as its basis for
research and development a mandate for the active
development and demonstration of pollution control
technology at major emission sources in Alberta. It is
our belief that a joint partnership role for the
development of pollution abatement control technology
similar to that which already exists for AOSTRA should
be a priority. In addition to the valuable benefits
which such a research authority would have for control
of emissions in Alberta, significant potential financial
benefits could accrue to the province through patent and
licensing mechanisms.

Indeed, it may allow Alberta to
achieve a leadership role in North America in pollution
control abatement technology, especially at a time when
air quality standards are becoming more stringent, for
example, the recently approved Air Quality Act in the
United States. Technology developed in Alberta could
have applications world-wide and could provide a major
new industry within Alberta. The Athabasca Tribal
Corporation recommends that the creation of such an
agency be considered on a priority basis. Thank you.

MODERATOR MILLARD:

Thank you very much.

Jorg Ostrowski?

JORG OSTROWSKI:

Yes. Good evening, Mr. Chairman,

ladies and gentlemen. My name is Jorg Ostrowski. I'm 1
with Alternative Energy. My presentation consists of 2
two parts. The first one is a number of quotes from 3
some very important reports, some quotes from reports of 4
the past. Number two, I have about 30 specific 5
recommendations. 6

My educational background is I 7
have a professional degree in Architecture from the 8
University of Toronto. I have an advanced Master's 9
degree from MIT, Architecture as well, in the 10
Environmental Design program. Since 1976, I've been 11
involved in full-time design, research and consulting in 12
regards to sustainable development. All of our projects 13
since that time have included two parts, one on the 14
demand side management part, energy conservation. On 15
the other side, the supply side, it's been based on 16
renewable energy. I'm also a member of the Environment 17
Council of Alberta, the non -- the Energy and 18
Non-Renewable Resources subcommittee, and I'm also a 19
director of the Alberta Association for Environmental 20
Health. 21

August 1989, Toronto, the 22
communique' from the Federal, Provincial and Territorial 23
Conference of Energy Ministers: The communique' said: 24

"The ministers emphasized that conservation 25
and alternative energy are key elements in any 26

comprehensive Canadian strategy on sustainable 1
development. There are many significant 2
opportunities to invest in energy efficiency 3
and alternative energy, and the ministers 4
agreed that these areas represent the most 5
cost-effective means to reduce CO/2 and other 6
emissions." 7

The Brundtland Commission, which 8
basically launched the interest world-wide in 9
sustainable development, in its report of the World 10
Commission on Environment and Development, 1987, said: 11

"The Commission believes that every effort 12
should be made to develop the potential for 13
renewable energy, which should form the 14
foundation of global energy structure during 15
the 21st Century. Renewable energy sources 16
require a much higher priority and national 17
energy program research and development 18
demonstration projects should command funding 19
necessary to ensure their rapid development 20
and demonstration. It is clear that a 21
low-energy path is the best direction towards 22
a sustainable future." 23

The Minister, Ralph Klein, has 24
issued this publication thanking Albertans for their 25
input in regards to comments about what should direct 26

and underlie new policy in regards to environment. Page 1
9 of this report, these are comments from people who 2
submitted their comments: 3

"Encourage the establishment of alternative 4
technology conservation research centres and 5
industries to replace polluting and aging 6
industries." 7

"The development of solar power in place of 8
energy obtained from combustion of 9
hydrocarbons." 10

"To encourage the use of renewable resources 11
such as water, wind and solar power; 12
discourage use of non-renewable resources." 13

"We should support those productive 14
employments which maximize the value of 15
renewable resources." 16

"We must charge fair prices for water to make 17
people choose conservation, put conservation 18
rather than maximum use as a priority." 19

"And resource people that are knowledgeable 20
about the environment should be active 21
consultants for the Alberta Government." 22

"It is my strong belief that future 23
generations have an equal right or privilege 24
of living in an environment free from 25
pollution and productive and renewable 26

resources."

The report on the Green Plan
consultations has a few interesting comments as well
that should be noted:

"There was unanimous support for the demand
side management efforts that focus on
improving energy efficiency and implementing
energy conservation. At the same time, the
supply side, many stress the need to develop
alternative energy sources, particularly
renewable resources.

There was also a wide range of opinions
concerning energy mega-projects, with some
people demanding more environmental
considerations and others calling for a
complete halt to such initiatives and the
removal of any further federal assistance to
these projects. One strongly-supported
alternative for mega-projects was to encourage
small-scale locally-generated power sources."

That's the report on the Green
Plan consultation, this report here.

The most recent report on the
Green Plan consultation is the National Wrap-Up. I just
want to bring to your attention one quote. They
recommended:

"The establishment of new research and development programs to support research into longer-term renewable alternative energy options, such as alternative liquid fuels and renewable energy sources. By the fiscal year 1991-'92, establish levels of funding equal to current nuclear and conventional R & D levels using whatever means are at the Federal Government's disposal."

The Standing Committee on 10
Environment just issued this orange publication here. 11
As you know, the Standing Committee on Environment, 12
House of Commons, was an all-party committee, and it 13
made many different recommendations: 14

| | |
|--|----|
| "The Toronto Conference suggested that half of | 15 |
| this reduction in CO/2 could be achieved | 16 |
| through energy conservation and improved | 17 |
| efficiency in energy use, with the other half | 18 |
| achieved through substituting alternatives for | 19 |
| hydrocarbon fuels used today. | 20 |
| Given the opportunities in this country to use | 21 |
| energy more efficiently and effectively, the | 22 |
| Committee concludes that the Toronto target, a | 23 |
| 20 percent reduction of 1988 levels of CO/2 by | 24 |
| the year 2002, is the minimum that Canada | 25 |
| should strive for as an interim goal." | 26 |

The city of Toronto has already 1
endorsed this. 2

"Today, we especially cannot ignore the 3
environmental implications of using energy. 4
The need to restore a vigorous R & D program 5
in energy conservation and alternative energy 6
development is manifest. 7

In the longer term, the Committee sees a major 8
role for hydrogen and electricity as 9
transportation fuels. Depending on the means 10
by which fuel alcohols, hydrogen and 11
electricity are produced, these energy 12
carriers could be far smaller net contributors 13
to the greenhouse gas emissions than are motor 14
vehicle, aviation, rail, marine transportation 15
fuels today. 16

Although the Federal Government supports a 17
modest program of research/development/ 18
demonstration in transportation fuels, the 19
Committee does not consider this effort at all 20
to be commensurate with the magnitude of the 21
challenge and the opportunities involved. 22

Therefore, the Committee recommends that the 23
Federal Government introduce a major research, 24
development and demonstration program with its 25
objective being the commercial development of 26

transportation fuels and systems that result 1
in the lowest economically and technically 2
feasible emissions of greenhouse gases." 3

1978, December, this publication 4
on solar and wind was produced by the Alberta 5
Government. On page 46, this publication says: 6

"The provision of a moderate level of passive 7
solar heating often involves nothing more than 8
careful attention to design. The 9
opportunities for utilization of passive solar 10
design concepts are very large even if only 11
applied to new construction and only to a 12
moderate degree." 13

Alberta is the highest CO/2 14
producer in Canada, about 33 tonnes per person per year. 15
The Canadian average is about 16. 95 percent of our 16
electricity is produced by coal. We have a very strong 17
opportunity, a window of opportunity, to develop 18
solutions that address the problem before us. 19

Recommendation number 1: That 20
all government procurement be based on environmental 21
criteria. 22

Number 2: That staff be hired 23
who are open to, informed about or actually interested 24
in sustainable development, environmental technology, 25
renewable energy. 26

That the present Energy Saver 1
series of booklets that are available at all building 2
supply centres right now be extended to include topics 3
and booklets on sustainable housing, photovoltaics, 4
embodied energy, indoor air pollution and 5
environmentally-sound building materials. 6

Recommendation number 4: To 7
establish a ministry on alternative energy. 8

Number 5: To establish an 9
institute on sustainable development. 10

Number 6: To extend the 11
Southwest Alberta renewable energy initiative of the 12
Provincial Government to the rest of the province with 13
much larger funding with priorities towards energy 14
conservation, which is the cheapest form of energy at 15
this time. Priority number 2 would be passive solar; 16
number 3, mini-hydro, biomass, wind and photovoltaics. 17

That more money be available 18
specifically for such demonstration projects as 19
environmental housing, sustainable communities, solar 20
subdivisions, solar-electric vehicles. 21

Number 8: To establish a job 22
creation program, a small business incentive program for 23
industry in the environmental and alternative energy 24
field. 25

Recommendation number 9: To 26

reduce the size of the government to be able to farm out 1
more work to the private sector. 2

Number 10: To encourage the 3
design and the construction of the first Canadian 4
environment building. This would be a small office 5
building with industrial bays as an incubator for 6
businesses and industry that is being implemented, 7
started up in the environmental technology and renewable 8
energy business. 9

Encourage Alberta utilities to 10
take on a conservation mode. This is right now being 11
mandated in Ontario to Ontario Hydro. We have to deal 12
not only with supply end, but also we have to deal with 13
the demand side management as well. There's federal 14
legislation in the United States that requires all major 15
energy suppliers to only undertake those projects that 16
are the most cost effective. 17

Recommendation number 12: To 18
promote the concept and demonstration of environmental 19
showcases in our provincial parks. This is something 20
that can easily be done, and there's many examples of 21
this both in the national parks in the United States and 22
in other countries in the world, where working examples 23
with educational displays be integrated into the 24
provincial park system. 25

Number 13: Make more money 26

available for multi-family retrofitting projects, with a
highlight being relamping.

Number 14: Any legislation
dealing with air quality must consider indoor air
pollution. It is no good just dealing with the outside
environment. The inside environment to children, to the
elderly and to other people is absolutely critical in
either offices or in homes. And so indoor air pollution
is very, very important.

The concept of embodied energy
and cradle to grave. Environmental, social and health
costs must be applied to all environmental reviews of
energy projects. Embodied energy is the amount of
energy -- and also, therefore, the implied CO/2
emissions -- of any building product, whether it's
siding, whether it's this desk or the chair, from the
beginning to the end, how much energy, how many
emissions have been emitted during the entire
cradle-to-grave scenario.

The Province should endorse as a
goal, at the very least, the 20 percent reduction in
1988 CO/2 emissions by the year 2005, as recommended by
the Toronto Conference.

Number 17: The termination of
all provincial subsidies, rebates, et cetera, to
establish a level playing field for all forms of energy.

Number 18: To establish a CO/2 1
tax, as other countries already have, and also perhaps a 2
coal tax or maybe an environmental lottery to pay for 3
the programs that I'm talking about. 4

Recommendation number 19: To 5
increase the 5.2 cents per kilowatt hour that is 6
available now for renewable energy sources when 7
interconnected back to the grid under the Small Power 8
Research and Development Act. 9

Number 20: To tighten the 10
energy-efficient requirements of the Alberta building 11
code and to integrate passive solar design features and 12
co-generation opportunities. 13

Number 21: The Province should 14
explore the possibility that the Alberta Mortgage and 15
Housing Corporation institute a program of preferential 16
energy-efficient mortgages, as has been done in the 17
United States. 18

To encourage Access radio and TV 19
to carry more programs on environment. 20

Number 23: To establish a centre 21
of alternative energy and appropriate technology, such 22
as the Sandia Labs, NCAT in the United States, SERI, as 23
has been established throughout many countries of the 24
world. 25

Recommendation number 24: To 26

encourage local grass roots round tables on environment 1
and economy. Pincher Creek has already set this up. 2
There are many small towns in B.C. that have also done 3
this. 4

Number 25: To encourage urban 5
gardening, composting, reforestation, recycling centres, 6
such as the Architectural Clearing House in Edmonton, 7
more bicycle paths in urban centres. 8

Recommendation number 27: 9
Programs and money for the public and industry for 10
workshops and educational programs to both the 11
professionals and within the school, especially field 12
trips to projects that have already been executed. 13

Number 28: The extraction of 14
methane and bio-energy from sewage treatment plants and 15
treatment centres. 16

And number 29, the last one: The 17
Clean Air Strategy should be expanded and widened to 18
allow grass roots and industry representation in the 19
widest scope possible while we still have the 20
opportunity. 21

Thank you very much. 22

MODERATOR MILLARD: Thank you, sir. Why don't we 23
take a break at this point in time and come back in 24
about ten minutes. 25

(Meeting adjourned at 8:50 p.m.) 26

(Meeting reconvened at 9:10 p.m.)

1

MODERATOR MILLARD:

Can we proceed, ladies and

2

gentlemen.

3

The next presenter is Dr. Robin

4

Basu.

5

DR. ROBIN BASU:

Good evening. Mr. Chairman,

6

ladies and gentlemen, I'm pleased to see so many of you

7

have made the effort to come and attend this regional

8

meeting, which shows that there is a concern about the

9

air quality in Alberta. I suppose I would have been

10

happier to see a slightly bigger audience, but this is

11

very good indeed at the starting.

12

Being the seventh speaker, I have

13

the advantage that I don't have to break any ice. I'm

14

standing on crushed ice already. But the previous

15

speakers have said most of the things I wanted to say,

16

so I'll have to take a different track. I don't want

17

to -- I hate to repeat things.

18

Air pollution is a very serious

19

matter, because it can cause death, impair health,

20

reduce visibility, bring about vast economic losses in

21

many different ways, and contribute to the general

22

deterioration of both our cities and our countryside.

23

And I'm not just saying that like a parrot. I have seen

24

effects of air pollution and serious effects of air

25

pollution in various parts of the world, since I have

26

been involved in making power stations and in 1
troubleshooting power systems in Europe and Asia and 2
Africa. And, in Alberta, we hardly know what air 3
pollution is on the ground level. Percy Bysshe Shelley, 4
the poet, said in 1819 that hell is a city much like 5
London, the populous -- a smokey city. And, of course, 6
London is not at all like that anymore, and London has 7
been completely cleaned up. It was cleaned up long 8
before I went to London, and that shows how much 9
improvement can be made. It's a very pleasant city -- 10
world city indeed. 11

But we are responsible for all 12
the pollution in the world, we human beings, because we 13
started pollution when we invented fire, and as soon as 14
we started to burn things, pollution started, and since 15
then, we have burned merrily everything that we could 16
lay our hands on. The coal was, of course, found 17
literally after we invented fire, and the burning will 18
go on. Of course, we have no alternative to stopping 19
combustion altogether, because much of our industry is 20
based on combustion, but we have to now redesign most of 21
our systems from the point of view of the balance in the 22
atmosphere. 23

It is a regrettable thing that 24
power stations -- we even waste more energy than we use. 25
Most of the energy systems, you will find that the net 26

energy use is much less than the energy wasted. And our 1
power stations are very good examples. Most of our 2
power stations have efficiencies of the order of a 3
little over 30 percent, unless they use co-generation, 4
which it doesn't exist very much in Alberta. Now, 5
this -- of course, the heat we throw out into the 6
atmosphere and in cooling ponds and so on is regrettable 7
both from the point of view of wastage of energy and 8
also from the pollution and the contribution to the 9
gases in the atmosphere that we make. 10

After polluting the air for many 11
millennia, we are now coming to our senses. The air 12
quality has become a matter of concern. But the 13
situation is still not quite under control. We can halt 14
this deterioration if we have the will. And, of course, 15
there is a cost involved. Clean air is not cheap and 16
not cheap in an industrial society, because most of the 17
processes that we work with cause pollution, they 18
generate sulphur dioxide, carbon dioxide and all the 19
other noxious gases that we are concerned with. 20

Now, air pollution cuts both 21
ways. If we throw too much particulate matter in the 22
air, then the sunlight cannot reach us and, in fact, we 23
get a cooling effect. And that is how the term "nuclear 24
winter" comes along, that if we have a nuclear explosion 25
in the upper atmosphere, we will be shivering within 26

seconds. In fact, even in a solar eclipse, it
emphasizes that -- there's a low temperature. But, on
the other hand, as soon as we increase the number of --
amount of gases in the air, we get the other effect, we
get trapping of heat, so we get the heating effect.

Now, this is something that has
caused a lot of controversy. Some people don't want to
accept that the world is heating up. In fact, I
constantly read records about cities like Alabama
claiming that they are cooler than before. Now, all
this can be true, but unless we look into the various
processes that are working, we are never sure whether
something -- whether we have a slight cooling or a
slight heating and so on.

Now, to make any changes in air
quality is difficult and progress is usually slow. It's
hard to believe that air pollution abatement got started
in the United States as early as 1913 with the early
research and development by companies to capture fine
particulate matter from smoke stacks, and that matter
has become quite sophisticated, but, even now, we do not
really get an absolutely clean emission-free discharge
from most of our power generation processes. I'm not
talking about hydro or something like that but thermal
coal-burning power stations.

So this is a complex matter, and

anything to do with energy is very complex, because 1
energy affects every one of us. Every one of us has a 2
different concept of energy. Our demands are different, 3
our consumptions are different, and our will to change 4
our way of life is different. In a democratic society, 5
to do something uniform about energy consumption and use 6
is very difficult. And so that's why there's still this 7
non-universal acceptance of the fact that there is a 8
danger around. 9

In fact, some environmental 10
conferences that I have attended, I see a lot of heat 11
being generated by the scientists arguing among 12
themselves. There is a school of thought which still 13
does not admit that there is a so-called greenhouse 14
effect. And, in fact, at this year's International 15
Ozone Conference in London, England, there was a 16
considerable amount of heat without light. 17

To me, the rate of depletion of 18
ozone is less important than the fact that it has 19
happened at all or it is happening. And even if there 20
is a remote chance of the earth's temperature rising a 21
few degrees, three, four degrees, whatever, and the 22
after-effects of it, whether Venice will be sinking or, 23
British Columbia, people will have to move from the 24
shore, these are really minor from the total effect, 25
particularly in the poor third world countries. I think 26

vast areas of Bangladesh will disappear completely.

Now, in this conference that I referred to just now, some imaginative solutions -- now, if there is an ozone hole -- and there is definitely, which was found in 1982 with the Antarctic -- what are we going to do about it? Now, some imaginative and rather sometimes fantastic solutions were offered.

One scientist at Princeton University is working on a plan to use lasers to blow the hazardous chemicals before they can have time to deplete the stratospheric ozone layer. This would sound rather fantastic, but it is practical. And, in fact, the so-called Star War weapons that Ex-President Reagan was so enthusiastic about, this may be a good use for them, because we can turn these powerful lasers onto the contaminating gases and we can burn them up in the lower atmospheres.

The other method of replenishing the ozone supply has also been talked about. The entire ozone layer -- to give you an idea of the size of the problem, the entire ozone layer contains roughly 3 billion tons of pure ozone. If it were to be depleted by even 6 percent in the next hundred years, we would require to replenish 54 million kilograms of ozone per day to keep it at the same level.

Now, the methods suggested are

firing frozen ozone into the stratosphere or sending up 1
balloons with solar-powered ozone generators on board. 2
Now, again, this sounds rather fantastic, but it is a 3
fantastic problem so the solution has to match the 4
problem. 5

Coming down to on the ground, we 6
know that there are many ways to address the pollution 7
problem, and it's very heartening that even young 8
children now talk about these things. I have been 9
giving some lectures at schools, and I was surprised 10
that young children of seven, eight years old asked 11
"what's this hole in the ozone?" Somebody asked me the 12
other day. And that means that they are reading about 13
it, they are hearing about it from their teachers, and 14
so on. 15

And a colleague of mine, just one 16
of the speakers, said that education is the very first 17
step. Education is the very first step to change our 18
habits with our energy and our attitude towards energy. 19
That's for sure. And this education has to start from 20
the childhood for the children to understand how fragile 21
the earth's environment is and how much we are 22
responsible for damaging this fragility and 23
precipitating this crisis. I mean, we are the human 24
beings that are entirely responsible for this. 25

So we now know the four "R"s, 26

which are reduce, recycle, reuse, and to that I add 1
react, because I think we've got to react. We've got to 2
react. When you see that pollution is being created, 3
whether by a factory down the road or a shop or even by 4
a neighbour, I would like to go and discuss with them 5
the problem we are facing. 6

Reduction of energy use, of 7
course, is the most important and most effective step, 8
and it is an urgent necessity. And this, of course, has 9
to be reinforced. Now, from my personal experience, I 10
can say that I find it rather discouraging, and my 11
colleague Jorg Ostrowski made some excellent 12
recommendations on this point, because the fact that we 13
live in one of the sunniest parts of the North American 14
continent, Calgary falls within the sunniest spot -- 15
Calgary is one of the highest solar radiation within the 16
North American continent, and yet there are very few 17
buildings I see here designed to trap this valuable 18
energy and thereby reduce the energy use. 19

I believe that all new buildings 20
of any size -- of any significant size designed now 21
should be a smart solar house, by which I mean a house 22
that uses passive and active solar energy and is also 23
controlled optimally by a microprocessor. 24

Now, adding a microprocessor or 25
smart wiring at the construction stage does not add very 26

much to the cost of a building, but if you try to 1
retrofit an existing building later with smart wiring or 2
microprocessor control, that becomes quite a clumsy 3
affair. So why don't the architects and the developers 4
think in those terms, that every building should use -- 5
every building should be facing the right direction, 6
should have the windows -- and there has been vast 7
progress been made in these fields to make a building 8
very, very low energy house. Now, we -- each one of us 9
generate 75 watts, and if you have a house where you 10
consider all the heat losses, heat gain and heat losses 11
right at the design stage, you will neither have to air 12
condition it and not to spend too much money on heating 13
it. 14

When the municipal buildings in 15
Calgary were rising, these buildings with acres of glass 16
and roof area, one day it struck me that these buildings 17
would be ideal to have a demonstration project of solar 18
energy in Calgary. So I rang up the architect of the -- 19
particularly, I think, the City Hall, the new modern 20
City Hall, and I somehow traced him, and then -- he was 21
very busy, of course, very difficult to get ahold of, 22
and I said that "Are you using any solar energy in your 23
building, are you utilizing any or have you designed 24
anything?" And he said no. So I asked him why, and he 25
said "I did not think about it, it never struck me". 26

Now, this business of never 1
striking is something that we must change. We live in 2
one of the sunniest parts of the world, although in 3
spite of the winter. We are so effectively shielded 4
from the winter because we have so many things, chinook, 5
the sun and so on; yet we do not make much use of it, as 6
far as I can see. And we do not think of this vital 7
resource we have when we design our houses. And this 8
sort of thing must come into our thought process. 9

The same approach to energy 10
conservation and efficiency should permeate into our 11
industries. Now, in America, I have been involved in 12
co-generation design for some time, and in America, most 13
of the large industries who generate their own electric 14
power go entirely for co-generation, and the government 15
has got various tax benefits and so on which makes it 16
worthwhile. So that not a single calorie, not a hundred 17
calories of heat is wasted. 18

See, you make your electricity, 19
and then the excess heat from your circulating water or 20
whatever, you use heat exchangers, extract that heat and 21
use it for industrial purposes. This is the way it 22
should go. And, in fact, in several countries, they are 23
now finding it possible to make larger factories and so 24
on because they can save so much money on utility bills, 25
and utility bills are much higher there than here. 26

Today there are available more or
less efficient version of equipment, starting from
domestic appliances, cars, to electric motors. I think
if we are really concerned about the quality of air, we
should never buy anything which is less energy efficient
than it ought to be. So I don't think that we want to
see less efficient refrigerators, washing machines, et
cetera, disappear from the market. We want to use
electric motors which are of the highest efficiency.

I was so surprised that -- I was
involved in a utility design exercise here not so long
ago, and I made a very strong point about using all the
electric motors of the highest efficiency, but the
utility wasn't interested because they could save a few
dollars by using the less efficient electric motors, and
this kind of thinking I think has to go if we are
concerned about the quality of air.

In the coming century, gasoline
is going to be replaced as a vehicle fuel, and my bet is
on solar hydrogen. And my bet is on solar hydrogen
because it is a clean fuel and is the only closed-cycle
fuel. All the fossil fuels are open-cycle fuel, which
means that, if you burn it, you change it into something
else and it cannot be changed back again. And solar
hydrogen is -- if you burn it, you get water, so it
emits a closed cycle, and it's a clean fuel which does

not change the environment and emits very little 1
pollutants. It's -- just a little nitrous oxide, no 2
carbon dioxide emissions at all. 3

Now, already the latest report 4
from World Research Institute shows that it is 5
comparable to or better than methanol in cars, and the 6
disadvantage of methanol is that you have to have the 7
acreage devoted to making these things, the initial core 8
or whatever you make, before you make it methanol. And 9
solar hydrogen is made by modern -- you see, the cost of 10
solar hydrogen has gone down because the solar modules 11
of today are made from very thin amorphous silicone, 12
which is basically made from ordinary sand, so you take 13
ordinary sand and you take ordinary water and you create 14
hydrogen. That's your fuel. 15

And this fuel, again, 16
unfortunately, because in Alberta we have cheap energy 17
and our basic economy is connected -- is linked to 18
production of oil and gas, there seems to be a kind of 19
very marked lack of interest in solar hydrogen, so much 20
so that, when the last calls came for research projects 21
on hydrogen, our attempt to get even a pilot plant 22
investigation in solar hydrogen did not succeed because 23
there is absolutely no intention, it seems, from the 24
decision-making bodies to look at solar hydrogen at the 25
moment. But this solar hydrogen I am willing to predict 26

is going to be the transportation fuel in the States 1
very soon. 2

In the World Research Institute 3
of Washington's report, they have shown by calculation 4
that by just dedicating less than 1 percent of the land 5
area of United States, they can replace all the fossil 6
fuels, all the gasoline that's being used for 7
transportation. This has caused quite a bit of 8
excitement, and people are looking into this, and the 9
advantage of this is that you can make hydrogen not -- 10
you don't need a fertile land, you don't need anything, 11
you can make it in the middle of the desert. And the 12
biggest experiment of this is going on in Saudi Arabia, 13
because Saudi Arabia is interested in using as little 14
oil -- selling as little oil as possible, keeping most 15
of it in the ground for generations and going into other 16
things, diversifying, and their plan is now to make 17
enough hydrogen to pump -- to send it by tankers or 18
pipes to other countries. 19

Now, that's the way to go. Our 20
renewable -- non-renewable resources in Canada should 21
not be burned off. They should be retained and used for 22
better purposes. Coal can be used for drugs and various 23
other things. You should not burn coal if we can find 24
something else. Same goes for oil and gases. 25

We should think of the future 26

generations who, when they come up -- like today in 1
Newcastle, there is no coal. You remember the old 2
saying "carrying coal to Newcastle"? And now anywhere 3
within 50 miles radius of Newcastle, there's not an 4
ounce of coal. I can tell you. I was there. And I 5
believe that all this is related, and we have the will 6
to stop this deterioration process. And thank you for 7
giving me your ear. 8

MODERATOR MILLARD: Thank you, Doctor. 9

Dr. Damgaard? 10

DR. NEILS DAMGAARD: I don't know if that's a signal 11
that we take too much time up here or whatever, but if 12
the lights completely go out -- or are you just being 13
efficient? Thank you very much. 14

I'm President of the Alberta Fish 15
& Game Association. We have over 15,000 members across 16
the province today. I'm also a family physician here in 17
Calgary. 18

Now, our association was 19
established in 1909. We represent over 11,000 20
households in this province, from over 120 clubs and 21
over 100 communities throughout the province. Many may 22
ask "why is Fish & Game involved in the Clean Air 23
Strategy?" Simply because clean air and water with a 24
relative lack of pollutants is so vital to natural 25
ecosystems. The Association has prepared a brief, and 26

I'm quoting from that brief. I won't read it 1
extensively. 2

First of all, I want to talk 3
about carbon dioxide emissions. And here comes my 4
water. I'm also under the labouring effect of the 5
latest B-Yamigata flu that we have in town. I also had 6
a delivery this morning bringing another baby into the 7
world at 2 o'clock, so if your doctor passes out 8
tonight, there is a reason for it. 9

Carbon dioxide emissions and the 10
greenhouse effect: I think there's no question in my 11
mind and certainly in our Association's mind that the 12
scientific community says there is a greenhouse effect, 13
it's coming, and to debate it one way or the other is 14
rather like debating how many fairies can dance on the 15
head of a pin. It doesn't matter, it's coming, as 16
simple as that. 17

In Alberta, the major impacts 18
that we see will likely be on agriculture, forestry and 19
wildlife. We'll see more droughts, we'll see more crop 20
diseases and more pests and more wind erosion. Less 21
water; that's quite obvious. There will be a greater 22
rate of evaporation due to the production of greater 23
heat units. 24

Now, wildlife really gets 25
affected by that sort of thing. We lose the wetlands 26

and we lose other ecosystems. And unless action is 1
really taken to reduce this buildup of greenhouse gases, 2
we are simply wasting our money, we're wasting our time, 3
and we're wasting our effort in trying to develop 4
wetland habitat and projects and other habitat-related 5
projects. It's quite simple: There won't be any 6
wetlands or many of these other habitats in the prairie 7
provinces if we don't curb this effect. 8

Now, it's so readily apparent 9
that wildlife will suffer if the rate of warming is not 10
reduced, and that rate of suffering is a loss of 50 11
percent of the species on the face of this earth. 12
That's just an unheard-of situation. 13

The one source -- and I mentioned 14
CO/2 or -- is really the major source as a greenhouse 15
gas. Our sources say 50 percent of the warming trend is 16
from CO/2 production, which comes from the burning of 17
fossil fuels. 18

Now, early in '89, our 19
Association did pass a resolution that was developed in 20
1988, and you have probably heard these resolutions all 21
over the place, that the Government of Alberta 22
established a goal to reduce CO/2 emissions by at least 23
20 percent of '88 levels by the year 2005. Now, I have 24
mentioned -- or have heard mentioned 2002 before, but we 25
gave them an extra three years. Now, we believe that's 26

realistic, when you think about it. It does require 1
that you and I and perhaps everybody in the world might 2
have to accept a little bit less. But it's the old 3
story, you know, where you pay me now or you pay me 4
later and, believe me, you can't afford to pay me later. 5

Now, policy options you can look 6
at for this 20 percent reduction include energy 7
conservation and improved efficiency of energy 8
utilization. Now, you've all heard this. It's already 9
been brought up. I'm not going to spend a lot of time 10
on it. But, to us, it looks very simple: Increasing 11
prices of non-renewable energy is the most efficient 12
method of stimulating energy conservation and improved 13
efficiency. And you can just see how many people were 14
rushing out to buy those 50-mile-per-gallon cars out 15
there these days when they had to pay 65 cents for a 16
litre of gas. 17

Now, you could also do that with 18
increasing floor prices for Canadian oil, and there may 19
be some constraints to this due to the Free Trade 20
Agreement, among others. A carbon tax is certainly a 21
possibility that we can accept, provided that carbon tax 22
is used appropriately, and that is stimulating renewable 23
energy sources, helping to reduce emissions of other 24
sources, and starting a high technology of energy 25
conservation and exporting that technology so that we 26

recover that in the future.

Certainly renewable energy is a way to -- we've got to look at that. And Alberta is blessed. We have sunshine like no other parts in North America almost. I should know. We also have the highest rate of skin cancer in Canada. But that's -- that's another point. Just as economic dis-incentives are the most efficient method of discouraging non-renewable energy consumption, economic incentives could be used to encourage use of renewable energy. In Canada and particularly Alberta, we have that opportunity to become a world leader in renewable energy technology. And our previous speaker who alluded to that, I would like to thank him. That was an excellent presentation.

Three, we can reduce emissions; there's no question about that. And we can perhaps use some of those CO₂ emissions for other situations.

And, fourthly, international. Yes, of course, if we don't all get together on this -- we're no longer Alberta, we're part of the global village, and if we all can't get together on this, it will all be for not. But I don't think Alberta should sit back and wait for the rest of the world to do their thing and then we'll get on board. And I think governments and particularly the Alberta Government

bring copies for everybody. It costs energy to produce 1
copies, even though my copies happen to be made on 2
hundred-percent recycled, hundred-percent unbleached 3
paper. But, certainly, we feel there should be an 4
emphasis on integrated solutions to air pollution 5
problems not only involving CO/2 but certainly the 6
NOx's and the VOC's and the sulphur dioxides and other 7
oxides of sulphur. 8

Now, here again comes this 9
political thing into the situation. We were at a 10
technical briefing just last August with the feds, and 11
they indicated they're taking a market-driven approach 12
to energy efficiency and diversification. Now, we 13
questioned that a little further: "Would you take that 14
kind of approach to energy development?" No, no, they 15
say. They say that they are prepared to not use that 16
approach for fossil fuel development because of the need 17
for regional development and jobs. That's all right. 18
But the feds were quite prepared to subsidize 19
destruction of the environment but not protection of the 20
environment. 21

And while we're on it, here we 22
have Mr. De Cotret, and the best he can do is "maybe we 23
can stabilize CO/2 production in this country by the year 24
2000". Two years ago, he said we'll go for the 20 25
percent reduction. And then our Federal Environment 26

Minister is running around to all the provinces making 1
deals, you know, hear a deal, there a deal, everywhere a 2
deal, but when a reporter talks to him in Ottawa, he 3
changes his mind. And that's not the kind of rapport we 4
need from our politicians if we're going to solve this 5
problem. I see a definite problem with the feds, I see 6
a definite problem with our provincial governments, and 7
that's not any different than here in Alberta. 8

Sour gas emissions is my next 9
subject, or, more appropriately, acid deposition. 10
There's no question about the amount of deposition -- or 11
acid deposition we have in Alberta. The figures we 12
have, the total average sulphate deposition, wet plus 13
dry, in Alberta is 26.4 kilograms per hectare per year. 14
The average -- or the target level established to 15
protect moderately sensitive areas has been set at 30 16
kilograms per hectare per year, so we're approaching, 17
you know, a danger point here on moderately sensitive 18
areas in the province. In fact, in sensitive areas, the 19
target is only 12 kilograms per hectare per year. 20

As we see it or what -- and these 21
figures are readily available. 22 percent of the soils 22
in Alberta are highly sensitive to acid deposition, 30 23
percent are moderately sensitive, so that we're already 24
putting a third of our province at risk from acid 25
deposition. Between 5 and 10 percent of our lakes are 26

extremely sensitive to acid deposition. We've already 1
got problems showing up. 2

Now, the problems of acid 3
deposition are certainly well known. And I think we can 4
do something about it. But perhaps not as well known as 5
that people get sick from it too. Now, people in 6
Alberta who live near sour gas plants, they feel that 7
their health is adversely affected. And it's not only 8
near Pincher Creek; it's Grande Prairie, Sundry, 9
Lacombe, Mayerthorpe, Rimbey, St. Albert, just to name a 10
few. 11

Now, we did a study, partial 12
study, on the results of -- or what acid deposition can 13
do to human health, and that was the Southwestern 14
Alberta Diagnostic Review done by Spitzer. Now, from 15
that study, we could identify four medical problems that 16
kept cropping up when it came to sulphur deposition, at 17
least, and that was: Chronic bronchitis, that has to do 18
with your lungs; dermatitis has to do with your skins; 19
neurological problems, including deafness, and back 20
problems with neurological signs; and, fourthly, 21
hypertension or high blood pressure. Now, Spitzer 22
himself pointed out that the hypertension problem should 23
be looked at much more closely, and that still hasn't 24
even begun to be looked at. Certainly, fish and 25
wildlife can be affected by sour gas emissions and acid 26

deposition.

The solutions are obvious, and that is we must have a reduction in sulphur emissions. Surely, best available technology -- and that's been our position -- must be used on all sulphur emissions, even small producers. Provisions must be put in place to allow companies to at least retrofit plants to meet newer and tougher emission standards. And that's where other -- for example, that's where a carbon tax could be helpful, on that sort of thing.

I bring up a small point: Heavy metal emissions. I haven't heard anybody else bring it up. I heard that somebody brought up Suncor and Syncrude, which are our two biggest point-sources of sulphur pollution in the province. They're also our two biggest sources of heavy metal emissions. And these are a real host of funny names that you may see occasionally on an atomic chart, and I haven't seen any since I was in university. But they're showing up in the mosses, they're showing up in the lichens, and they're increasing. Fortunately, one of the plants has put in a vanadium extraction unit, but there's still a dozen other heavy metals to be looking at.

Indoor air quality: The previous speaker mentioned indoor air quality, and I agree. The air that we have indoors is infinitely worse than when

we go outdoors, and people don't realize that. Your 1
very own homes are probably even worse than your office 2
buildings, and we don't have a policy to address that in 3
this province or this country, and that's a sad fact of 4
life, because we, as front-line physicians, we've got to 5
treat it, and it can show up in a variety of ways. 6
There's no question that worker productivity and general 7
health is enhanced when they are treated to good 8
quality, clean and fresh air. And that's the positive 9
side effect or positive benefit of getting a good, clean 10
indoor air policy. 11

I'm going to finally bring up 12
some of the human health dimensions, because as a family 13
physician, I just can't sit back and say ignore this, 14
ignore that. To no one's surprise, as I mentioned, 15
good, clean fresh air is good for our health. That's 16
logical. It's also logical to assume that polluted, 17
unclean and stale air is unhealthy. But how is it 18
unhealthy? 19

I bring up a point called 20
reactive airways disease. Reactive airways disease is 21
much like asthma, it has much the same effect, except 22
when you try and treat it. It doesn't treat the same 23
way. And, as a result, we're having an awful lot of 24
people dying in this country from reactive airways 25
disease. In fact, it's prompted the Medical Examiner's 26

office here in Alberta to do a wide-ranging prospective 1
study on what the hell's going on here, because young 2
people shouldn't be dying from simple asthma-like 3
conditions, but they are, and it's mainly young people. 4

Now, modern medical evidence 5
seems to suggest -- and it really suggests quite 6
strongly -- that airborne pollutants are the major cause 7
or the major contributing factor to reactive airways 8
disease. And if you haven't seen asthma, it's that 9
wheezing, they turn blue and the whole thing. However, 10
when your heart stops when you're in that state, you 11
can't get oxygen into the body, and no matter what you 12
do, you can't bring these people back once their heart 13
stops, and that's the sad point about it. 14

Reactive airways disease is 15
serious, and it's prevalence is so rampantly increasing, 16
especially in larger cities -- and Calgary is a large 17
city; so is Edmonton -- that we've even had periods in 18
Canada we don't have enough drugs to treat this disease. 19
We've had rationing of some of the drugs, and not many 20
people know that. And we don't want to scare everybody, 21
but it is serious, so the extra coughing you may hear 22
around the office may in fact be a manifestation of this 23
sort of situation. 24

Now, there are lots of other 25
situations that health effects show up. We mentioned 26

the Spitzer study, and there has been collaboration now 1
from a study in Nova Scotia where they studied people 2
related to low-level sulphur emissions from a pulp mill, 3
and they found the same thing, people do get sick from 4
this sort of thing, and it's not healthy. 5

Now, the compromising of human 6
health is surely an indicator we have problems with the 7
air we breathe. You know, these sick people or the 8
people that get ill from the air they breathe, they're 9
not conspiring against polluters, they're merely 10
passively reacting to it. The time is long overdue for 11
a clean air strategy that takes into account human 12
health effects. 13

Now, I appreciate the opportunity 14
for our Association to provide input to these hearings. 15
We certainly look forward to a continued dialogue and 16
follow-up, and as I said, the brief I've sort of quoted 17
from tonight has been presented to our Moderator. And I 18
think he's got a big hook back there, but -- it's in 19
draft form yet, and we will clean it up a little bit and 20
give it in final form in due course. I thank you very 21
much. 22

MODERATOR MILLARD: Thank you, Doctor. 23

 Alderman Sharon Fisk? 24

ALDERMAN SHARON FISK: Thank you. I'm very pleased to 25
be here this evening to be a part of these 26

presentations. I'm here as Deputy Mayor, and I
apologize I wasn't able to be here for some of the first
speakers, and if I duplicate or repeat what has been
said earlier, I apologize for that, but I have a
prepared script and I could not stray very far from that
as it is the City's position.

The City of Calgary is pleased to
present our views on the need for improved air quality
in this city and on the Clean Air Strategy for Alberta.
The preparation of the Clean Air Strategy is a
noteworthy accomplishment, and Mayor Al Duerr and other
Members of Council would like to compliment the
Government of Alberta for taking this initiative.

Calgary City Council is seriously
concerned about the declining air quality within this
province, particularly within the city of Calgary. We
are very pleased that the Provincial Government has
undertaken these public meetings. City Council agrees
in principle that energy-related exhaust emissions,
whether from automobiles or industrial processing, pose
a potential environmental health risk for Albertans, and
we likewise agree that the issue of clean air is a
complex, scientific and global matter that is
intricately interwoven into all aspects of our society.

One doesn't have to look very far
in this city to realize that the foundation of our

economy is the energy industry; yet we also recognize 1
that the air we breathe and its effects on our health 2
must be of greater concern and priority to us as a 3
society than the economic gains achieved by continuing 4
to consume our fossil fuel resources on the scale that 5
we do to meet ever-increasing energy demands. 6

We must weigh human health and 7
environmental considerations in relation to economic 8
considerations. Our society is quickly realizing that 9
our small and rather fragile world can withstand only a 10
certain amount of sustained environmental abuse. I 11
would suggest, Mr. Chairman, that the time for Albertans 12
and Calgarians to act is now. 13

The City of Calgary does support 14
the purpose and objectives of the Clean Air Strategy for 15
Alberta, and we want to work as a partner with the 16
Provincial Government to implement it. We endorse in 17
principle the national and international commitments 18
made for emission standards of carbon dioxide, sulphur 19
dioxide, nitrogen oxides, volatile organic compounds and 20
chlorofluorocarbons. 21

We fully recognize that consumers 22
and the energy industry in this province, as the largest 23
producer of fossil fuel energy in Canada, will be 24
impacted to a significant degree. The energy industry 25
and the consumers of these resources must recognize the 26

impact we are making. Maybe we must work harder at
developing better technology so that emissions will be
cleaner and we will see an improvement in the air that
we breathe. Yes, Alberta is only one small part of the
world's air pollution problem, but if a start is not
made somewhere, then how do we solve our world-scale
problems?

This public meeting is an
opportunity to not only promote the Clean Air Strategy
for Alberta but also for the City of Calgary to
highlight the actions that we as a corporation are
undertaking to illustrate that we are serious about our
commitment to clean up Calgary's air.

A recent public opinion survey
indicates that Calgarians on the whole place a high
value on protecting this city's air quality. Council
has heard this message and has acted with a number of
initiatives to begin the slow process of reducing
harmful chemical emissions into our atmosphere.

Several examples of
recently-initiated air quality enhancement projects in
Calgary are the Air Improvement Resolution, Air Calgary,
the program which encourages motorists to leave their
vehicles at home one in every ten work days and instead
use an alternate form of transportation to work, whether
that's car pooling, transit, bicycling, walking, et

cetera. The idea is to reduce the number of vehicles on
the road.

Calgary Transit is working on
improvements to public transit for the purpose of
encouraging greater ridership, resulting in fewer
vehicles on the road, particularly during the rush hour.
Calgary Transit is monitoring alternate energy pilot
projects for buses with a view to implementing proven
technologies at the earliest practical date.

The City is encouraging consumers
and businesses to reduce the use of products containing
or manufactured with the use of harmful products, such
as CFC's and halons, and to be generally more cautious
and responsible with environmental harmful or hazardous
gaseous materials, such as carbon dioxide. The City is
preparing a bylaw to control CFC/halon storage,
handling, venting and accidental escapes, primarily to
reduce and regulate the amount of these man-made
products entering the atmosphere.

The City encourages technological
advances which will reduce vehicle and industrial
exhaust emissions and ensures greater health, personal
safety and security at locations such as sour gas well
heads and technology which will lead to fewer natural
and accidental escapes of harmful vapors into the
atmosphere.

The City has an energy 1
conservation program for buildings and plants that it 2
operates and expends funding annually to retrofit for 3
energy savings. New facilities are designed with energy 4
conservation in mind. 5

The City is setting an example by 6
converting an ever-increasing number of its police cars 7
and other light-fleet vehicles to propane operation. 8
The City is also investigating alternative fuels, 9
including natural gas and methanol, for other vehicles 10
in the City's fleets. 11

Calgary Transit promotes use of 12
the public transit by proclaiming a Transit Awareness 13
Week. The City encourages provincial assistance with 14
transit operating expenditures through increased grants 15
and applauds the continued provincial support through 16
the grant structure for capital expenditures. 17

The Transportation Department's 18
Traffic Operations Division operates a traffic signal 19
light progression program to move vehicles through the 20
busy core area much more efficiently. 21

The City has established an 22
environmental office as a division of the Engineering 23
and Environmental Service Department to coordinate the 24
City's involvement in and to comment on matters relating 25
to the environment, including air quality issues. 26

These are but a few of the 1
initiatives the City of Calgary is undertaking as a 2
pro-active measure to improve the city's air. The City 3
of Calgary intends to continue to be pro-active in 4
implementing initiatives which will have a positive 5
effect on our air quality in the future. 6

An impact on the air quality in 7
this province will be felt in time, once residents begin 8
to accept that there is a need to change their business 9
practices, driving and lifestyle habits. The City's 10
part in the Clean Air Strategy for Alberta is minor, at 11
least in a global sense, but on a local scale, we are 12
confident that Calgarians who like a challenge will rise 13
to the occasion. 14

Calgarians' contribution towards 15
cleaning up the air will be made voluntarily and with 16
only modest adjustments or restructuring to our 17
lifestyles. We will have to voluntarily reduce vehicle 18
usage to essential travel, we will have to control 19
harmful emissions more strictly, and we will need to 20
capitalize on alternate modes of transportation, whether 21
that be public transit, car pooling, walking or cycling. 22
Calgarians must be willing to make concessions and to 23
take charge of our local environmental problems so that 24
our community as a whole will be exposed to fewer 25
air-polluting and atmosphere-altering emissions. 26

In summary, the Government of 1
Alberta's Clean Air Strategy is a positive move towards 2
setting and meeting fair and reasonable air emission 3
standards set for carbon dioxide, sulphur oxides, 4
nitrogen oxides, volatile organic compounds and methane. 5
Calgarians for the most part acknowledge we have a 6
world-wide air quality crisis and most are prepared to 7
voluntarily make measurable, possibly even significant 8
changes and sacrifices to their lifestyles and to the 9
way they conduct business. 10

Thank you, Mr. Chairman, for this 11
opportunity to show support for the Clean Air Strategy 12
for Alberta. We have a long ways to go, so let's 13
continue the journey together. Thank you. 14

MODERATOR MILLARD: Thank you very much. 15

Herb Jacobsen? 16

HERB JACOBSEN: Mr. Moderator, ladies and 17
gentlemen, for years I have wanted to say my piece, and 18
I could not pass up the opportunity to gain a podium. 19

It is said that good stewardship 20
of our natural resources is the rent that we pay for our 21
time here. Recently, the Calgary Herald noted the high 22
cost of proposed environmental programs, and the paper 23
questioned the affordability. We might ask just how 24
much rent can our economy afford to pay? We would 25
suggest that a greater emphasis upon past events could 26

bring a needed balance to our concerns for the 1
environment of the future. Here we would like to recall 2
just a very few past events relative to air quality. 3

I was raised in the town of 4
Okotoks downwind of the Turner Valley oil and gas field. 5
If we could smell sulphur -- and we often did -- we knew 6
that the wind was blowing from the west. Hell's 7
half-acre was symbolic of this period when an estimated 8
1 trillion cubic feet of sour gas was burned to 9
atmosphere. 10

Alberta's first sulphur recovery 11
plant was completed in 1952 at Jumping Pound. Over the 12
past decades through the combined effort of government 13
and industry, there is now almost complete removal of 14
sulphur from produced sour gas. We have experienced a 15
greater than 98 percent improvement over the 1930s and 16
1940s. Alberta Environment and the Conservation Board, 17
Vern Millard, deserve high marks. 18

In 1945, at Donora, Pennsylvania, 19
a high-sulphur coal was used as fuel. A smog developed 20
where 20 people died and 43 percent of the population of 21
14,000 became ill. 22

By way of contrast, we recall a 23
sign placed beside the Number 2 Highway at Red Deer. 24
The sign read "The cleanest sky in the world is above 25
you thanks to our heating with natural gas". Alberta 26

cities have grown since this time.

Dr. J.J. McKetta (phonetic) of the National Academy of Science has reported that all of man's pollution during his time on earth does not equal the emission of noxious gases from just three volcanoes, Java in 1883, Alaska in 1912, and Iceland in 1947. He suggests that man contributes to atmosphere 270 million tons of carbon monoxide largely through the use of the automobile.

Since the ratio of automobiles in the northern and southern hemispheres is nine to one, it might be expected that the northern hemisphere would have much higher levels of carbon monoxide. However, measurements show no difference in atmospheric carbon monoxide. In fact, there are higher levels of carbon monoxide found over the Atlantic and Pacific Oceans than over land.

Recently when driving in Washington between Pasco and Spokane, we noticed a small town in the distance. A welcome sign appeared at the side of the highway, and the sign read, "Lind, Washington. Come on in. Mt. St. Helens did." Such a positive attitude towards an environmental problem was exciting to see. On May 18th, 1980, a plume rose 22 kilometers into the air carrying 500 million tons of ash across the country. However, as reported in the Calgary

Herald on the tenth anniversary of the eruption, nature 1
does heal and this healing is underway. 2

On the subject of safety, the 3
Science Council of Canada prepared in 1977 a report on 4
policies and poisons, Report Number 28. Here a new 5
definition of safety was presented: Safety is not 6
measured; risks are measured. Only when those risks are 7
weighed on the balance of social values can safety be 8
judged. 9

A thing is safe if its attendant 10
risks are judged to be acceptable. Determining safety 11
involves two extremely different kinds of activity: One 12
is scientific, a measurement of the probability and 13
severity of harm. The other is political, judging the 14
acceptability of risk. 15

The report also notes that the 16
public is willing to accept voluntary risks roughly 17
1,000 times greater than those represented by 18
involuntary exposure. Having worked for some years in 19
the measurement of air quality, I am aware of some of 20
the analysis data that has been filed with Alberta 21
Environment over the past 30 years. Basically, the 22
analyses were made to learn whether or not the 23
acceptable standards of air quality were met. 24

Many thousands of analyses 25
results are on record, sampling being done in all 26

sections of Alberta. Having used a fraction of the data 1
ourselves to prepare a correlation, we suggest that the 2
data on file could be used to a much greater advantage: 3
By relating the old to the more recent data, we could be 4
advised of a significant trend in air quality for a 5
specific location. 6

We were impressed by a recent 7
newspaper heading in The Herald October 7th. This read 8
"Saving Yesterday for Tomorrow". Having regard for the 9
past, we might better anticipate the environment of the 10
future. 11

In conclusion, we would affirm 12
the need for us to maintain air quality and in so doing 13
pay the rent that is due. The care that we take 14
supplements the potential that creation does have for 15
renewal for bringing to us the springtime that follows 16
winter. Thanks. 17

MODERATOR MILLARD: Thanks very much. 18

Well, ladies and gentlemen, that 19
completes the list of submitters for this evening. Is 20
there anyone else that would like to make a statement or 21
make a submission at this point in time? Yes? 22

HUGH JONES: Mr. Millard, my name is Hugh 23
Jones, just a citizen, retired, and very interested in 24
all of these items. And I listened with great interest 25
to talk about insulation of homes, saving on 26

incandescent lights, but it was very late in the day 1
before anyone mentioned Mr. De Cotret's statement that 2
we were going to attempt as a nation to come back -- he 3
admitted that we would go beyond but -- to come back to 4
1990 CO/2 emissions levels. 5

Well, this could mean another 6
National Energy Program type of a consequence for 7
Alberta. It seems to me that this is an overwhelming 8
consequence within the area of this group to understand. 9
If we put in all of the efficiencies someone spoke of in 10
electric lights, there's very little efficiency to be 11
taken in industry. This is in homes; you might save one 12
half of 1 percent of the energy consumption in this 13
province. It's insignificant. 14

Almost all of the other items 15
that have been spoken of are insignificant by comparison 16
with this vast amount of CO/2 that's given off by our 17
energy industry. People talk about staying at 1990 18
level, but that leaves us 15 times higher than 4 billion 19
people in this world. The 1 billion of us who are 20
giving this much off may not always be allowed to give 21
that much, never mind the 47 percent increase that you 22
and I and industry in this province had presumed we 23
would do by slightly after 2000. 24

It would seem to me that this 25
ought to be a predominant area of study, and within the 26

weeks since Mr. De Cotret's statement, I would have
inquired if I had been in this group into a dozen or so
things, all of which I asked of the people at the open
house today and none of the questions could they answer
or could they even indicate that they had asked the
questions to the people who would have the answers.

For example, what would the
saving in CO/2 emission be if we as a province switched
to gas for our electric generation? I don't think we
would ever want to do that, I don't think the rest of
the country would want us to do it, but it would be a
good threat when we come to negotiating with the rest of
the country.

How much of the CO/2 that's
generated there and elsewhere could we inject in various
wells, and if we can inject some, how much energy do we
lose in doing the injection? In other words, what's the
practicality of this?

No one speaks -- and I've been in
constant communication with De Cotret to the point where
he finally responded and did mention once that carbon
can also be absorbed. How much forest would we have to
harvest each year -- because a forest simply growing at
climax does not absorb carbon, it is only a harvested
forest that absorbs carbon -- how much forest would we
have to harvest in this province in order to balance out

the whole thing? Ontario Hydro say that they can 1
balance it out with -- and I vaguely recall it was 2
something like a couple of townships within the province 3
of Ontario would balance their 12 million tons of coal. 4
It would seem to me that we might be able to balance it 5
here, but at least someone should have inquired into 6
this. 7

What are the other sources of 8
these gases that we will be required to stop emitting? 9
No one could tell me how much carbon dioxide was emitted 10
by the flaring of natural gas. They couldn't tell me 11
precisely the ways in which carbon dioxide is emitted 12
from the energy projects like the tar sands projects. 13
Maybe there's -- that's one of the places where we could 14
have a significant efficiency as opposed to one of these 15
little dribbles. 16

Just so many items that occurred 17
to me as a normal citizen we needed to know. It seemed 18
to me that within this group, you should have been 19
burning to know those things. 20

Well, that was one of the others 21
that I think they should know about: How much carbon 22
dioxide is given off in the forest industry in 23
unnecessary burning of slash? All of that slash could 24
be used as mulch, it would seem to me, and encourage the 25
growth of the new forest, whereas now, in B.C., at 26

least -- I haven't seen the industry burning slash here, 1
but they certainly do in B.C. 2

And controlled burns in parks and 3
elsewhere in this province must put a vast amount of 4
CO/2 into the air. All of that could be chipped and 5
mulched. I know the Green people in the park would 6
object to being required to do that, and I don't know 7
how much it would save, but these, it seems to me, are 8
things that I would have gotten the first train of the 9
answers, even in that short period since De Cotret's 10
speech, and I wonder if you could suggest to the group 11
that the emphasis might -- should be reconsidered. 12

MODERATOR MILLARD: We'll take that into 13
consideration. 14

Any other comments or questions 15
or statements? 16

PETER PROUDLOCK: Yes. Peter Proudlock speaking 17
again. A couple of things: I was hoping Alderman Fisk 18
was still here, and I'm wondering, if Calgary is 19
supporting the clean air initiative so strongly, why are 20
we as a city raising transit fares to try and discourage 21
ridership? That was one I think the City should be 22
required to provide. 23

BOB MITCHELL: Excuse me, Sharon is still here, 24
so if you could hold your question, we'll get her back. 25

PETER PROUDLOCK: Oh, okay, I appreciate it. The 26

other thing I notice on the -- one sheet that has been 1
distributed with the package Inter-relationships Among 2
Environmental Activities in Alberta, the regional 3
sessions started early November and will continue until 4
a little later in December, whereas the interaction and 5
the input or the output of these hearings through to the 6
Canadian Council of Ministers of the Environment 7
occurred mid-November, and I see on this that there 8
really is no continued output there. I'm wondering why 9
the hearings couldn't have been held a little earlier to 10
try and meet with -- so that that output would go along. 11
That's a comment there that perhaps there may be some 12
way of getting the additional output put on. 13

On the brochures, a couple and 14
one on methane, I note the coal mining emissions of 15
methane -- that's just one we've done work on -- at 35 16
megatons. The figures we've calculated are 58 megatons. 17
You know, it's a fair bit higher. 18

The brochure on the greenhouse 19
effect quotes methane as 9 percent of the greenhouse 20
effect, whereas the World Resource Institute has quoted 21
it at 15 percent. Now, these are just some differences, 22
and I'm not qualified to really say why they are. I 23
just thought I would bring them to your attention. 24

MODERATOR MILLARD: We appreciate that, you doing so. 25

PETER PROUDLOCK: And I also would like to direct 26

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that question to Alderman Fisk when she is back. 1

MODERATOR MILLARD: Is Alderman Fisk present? 2

Alderman Fisk, there was a question. And why don't you 3
put the question again, please. 4

PETER PROUDLOCK: Yes, Peter Proudlock. I'm 5

wondering, if Calgary supports the clean air initiative 6
so strongly and we're trying to reduce car usage -- and 7
I get around it by using another vehicle but -- why are 8
we increasing transit fares, which is a dis-incentive to 9
use transit, when public transit is probably the way of 10
reducing auto usage? We should be looking at better 11
service, gaining more ridership to gain income, not 12
raising fares, and that's going to reduce ridership and 13
someone will say, "To heck with it, I'll park downtown". 14
Has that been looked at? 15

ALDERMAN SHARON FISK: Well, yes, it has, and it still 16
hasn't been approved by Council that that fare will be 17
increased. I don't sit on that committee, so I haven't 18
had my opportunity to debate that, but I will be 19
debating it when it comes before Council. I don't agree 20
with the fares being increased because of that reason, 21
and hopefully we will get some more debate going on it. 22
It's not a fait accompli like you may think it is. 23

PETER PROUDLOCK: Thank you. 24

ALDERMAN SHARON FISK: Okay, was that -- 25

MODERATOR MILLARD: Thank you. I appreciate you 26

coming back.

Are there any other comments or
questions? I take it -- yes?

ED WOLF: Well, I see it's very late, so
I'll be brief in my comments, but -- I'm here not
representing any organization, but I would like to call
attention to the bulletin of -- Number 28, the Institute
of Resources Law recently published. And they analyzed
the Oil and Gas Conservation Act and the E.R.C.B. Act.
I think one of them at least was promulgated in 1938,
revised in 1971.

In a series of conclusions that
they reached, the Institute of Resources Law said that
in no instance did they feel that the legislation
permitted the E.R.C.B. to find any reason to delay any
project except where the public interest was defined as
developed.

I have written the E.R.C.B. about
this, and I feel this is a very serious deterrent to the
sort of thing we're talking about here this evening. I
feel that the E.R.C.B. and the Oil and Gas Conservation
Act are in severe need of reform.

I attended the recent N.R.C.B.
hearings. I believe I saw Dr. Damgaard there and
others. And I came away feeling that whatever was done
at the N.R.C.B., the E.R.C.B. will continue in its role

of finding that the public interest is solely developed. 1
I've attended hearings of the E.R.C.B. for like 16 to 18 2
years, and in all of the things that I have dealt with, 3
both for organizations and as an individual, the 4
E.R.C.B. in almost every instance when it had to 5
approved the project or the well in each instance. 6

 This gentleman here mentioned the 7
injection of gases, waste gases, greenhouse gases, into 8
the subsurface of geologic rocks. Many of the rocks in 9
this province are of sufficient voracity and 10
permeability to make that a reasonable cost for industry 11
to bear. In putting away some of these gases, the 12
E.R.C.B. recently approved the Caroline project for 13
Shell, another 4,000 tons a day of CO₂. Some of the 14
other gases I'm not aware of. 15

 But for something like 14 years, 16
I've been urging the E.R.C.B. to consider injection of 17
these gases to Devonian and Mississippian or -- and many 18
areas are certainly capable of taking these gases, and 19
as this gentleman pointed out, we haven't heard the cost 20
deterent for this, but it's certainly worth 21
consideration. 22

 And in the forum over at 23
MacDougall School today, I found that the coal industry 24
is considering doing that, and I feel that, in talking 25
to Shell recently, I said I regard Shell as the largest 26

polluter in the province and perhaps in Canada, and I 1
feel that, until they inform me differently, that that's 2
something that we can easily assume. And I feel that, 3
without a reform of our legislation that permits the 4
agency in charge to consider other measures besides 5
development as the public interest, we will continue to 6
have an ever-increasing amount of this, and this man's 7
suggestion is just excellent, that these industries 8
should be required to fully investigate reasons for not 9
putting these gases into the subsurface and relieving 10
the public of having to breed them and put up with them. 11
Thank you. 12

MODERATOR MILLARD: Thanks, Mr. Wolf. 13

Any other comments? Yes? 14

PHIL LULMAN: Mr. Chairman, my name is Phil 15

Lulman. I'm with TransAlta Utilities. And in response 16
to both these gentlemen's comments on this one instance 17
of gas injection into formations, we've been looking in 18
TransAlta at the possibility of taking carbon dioxide 19
from coal-fired generating plants and injecting it in 20
fact for enhanced oil recovery into formations. 21

Not being a geologist, I wouldn't 22
comment on which formations could take the gas, but in 23
discussions with the oil industry, and partly 24
responding, sir, to your question of cost, it would cost 25
us today about \$3.00 a thousand cubic feet of carbon 26

dioxide to actually extract it from our flue gases, and
it can be done.

We would receive for any volume
that we could sell approximately 80 cents a thousand
cubic feet, and under the provisions of the Public
Utilities Board that sets the rates in this province,
those essentially would be operating costs that would be
returned we think to the customer.

So, in that sense, the economics
are not there for putting this gas back into the ground
from a thermal generating plant, as we see it, but we
are trying to find many ways of both capturing gas and,
more importantly, disposing of it, because that is
proving to be the major challenge. And I hope that
helps you a little bit.

MODERATOR MILLARD:

Thanks, Mr. Lulman.

Any other comments or questions?

Well, perhaps we could close the
evening, and I want to say thanks very much for everyone
coming out, and I think we really should express our
appreciation for those that made presentations. I
thought they were an excellent group.

This has been by far the best
session that we have had since we've been on this
exercise, and I really commend those that did make
submissions. I thought they were excellent.

Vol 6 - 417 General Dialogue
Participants
Wednesday, December 5th, 1990

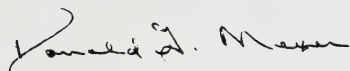
Thanks again, and good evening.

(Meeting ended at 10:30 p.m., Wed., December 5th, 1990)

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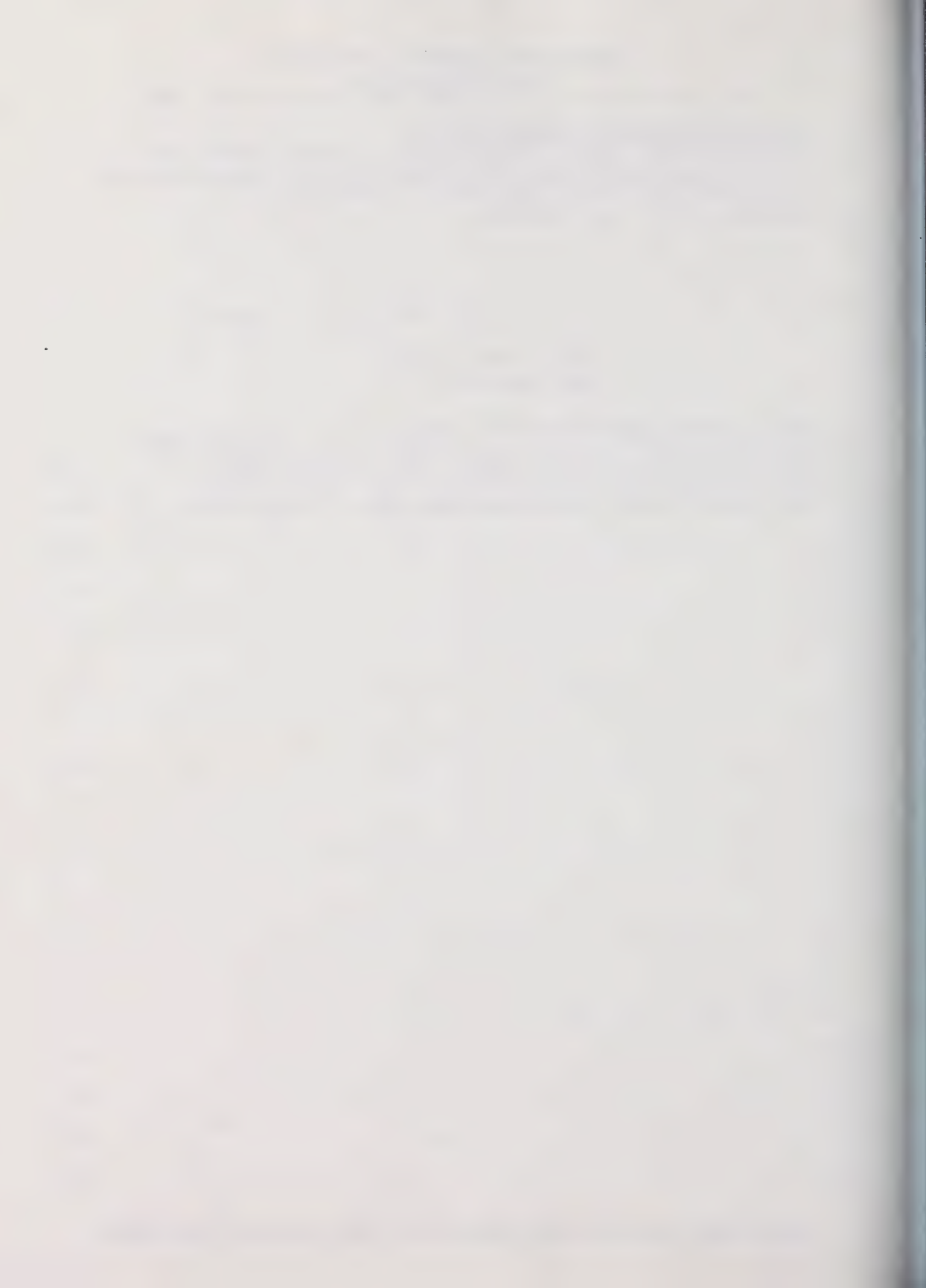
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Transcript of Proceedings

(Meeting commenced at 7:00 p.m., Thursday, December 6th, 1990)

MODERATOR MILLARD: Could we commence the evening,
please.

Let me say welcome to the boys
and girls and ladies and gentlemen that are here
tonight, welcome on behalf of the Clean Air Strategy for
Alberta. It's nice to see such an invigorating group.
We've been meeting around the province in various
locations. This is about the eighth -- seventh, I
guess, because we got snowed out at Pincher and we're
heading back there next week, but this is by far the
liveliest and the best-attended. So thanks very much
for coming out.

The program that we have for this
evening is I've been asked to make a few comments. And,
incidentally, my name is Vern Millard. I've been asked
to moderate these regional meetings, and I've been asked
to make a few introductory comments, and then we have
some presentations, at this point in time, three, but
there may well be more as we go along in the evening.
And, depending on how the evening goes, we may have some
dialogue, but it's kind of an easy, casual kind of
arrangement so that it's not too stereotyped and lots of
flexibility in it.

First of all, let me make some

introductory remarks setting the stage for the 1
discussions that we're going to have this evening. I'm 2
going to move over to the screen, because I have such 3
bad eyesight I can't see very well. 4

Well, let's start with what is 5
the Clean Air Strategy? And I think the first point we 6
start off with is the recognition that our planet is 7
threatened by man-made emissions. There's a growing 8
consensus in the scientific community that emissions 9
must be reduced in order to protect the environment and 10
protect the planet. And the Clean Air Strategy is 11
designed to encourage public discussion, to get people 12
like yourselves interested in the subject and to explore 13
the various avenues of it. 14

The Clean Air Strategy will 15
identify the most important issues, it will develop 16
practical approaches for reducing emissions, and it will 17
recommend policies and programs to the Government. And 18
out of all of that will develop a strategy for Alberta. 19

The Clean Air Strategy has four 20
main features. The first -- or four main steps. The 21
first step occurred last September when representatives 22
of various interest groups got together and reviewed the 23
problems, identified the key issues and options, and 24
then went on from there to arrange for and plan for a 25
reduction in emissions and the development of a 26

strategy.

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The second stage of the program is what we're engaged in tonight. It's called regional sessions. There are eight of them scheduled for around the province. As I said before, seven have been held, and one remains after this evening. And, in those sessions, the public is invited to participate, ask questions, present their views and recommend options that can be used by -- in developing a strategy for the province.

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The third stage is a summary workshop, which will occur next spring, at which time the views that were expressed at the regional meetings and other developments will come forward to that workshop, and the intent is to develop out of it a more-or-less finished strategy, which then goes into the fourth stage of presenting a specific set of recommendations to the Government.

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Well, what are the major problems related to air and clean air in particular? As I said before, continuing research by scientists indicates that we have some serious problems. For example, in November of this year at a Geneva conference, some 700 scientists reviewed and assessed the problem of global warming.

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There are really three primary problem areas. The first one is that very global

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warming that I was referring to, sometimes called the
greenhouse effect. It is caused by carbon dioxide and
other emissions into the atmosphere. The gases trap
energy radiated from the earth, and this results in an
increase in temperatures for the province. The
emissions occur in both the production and use of fossil
fuels.

This is a sketch of how this
effect works. The earth is shown by this semi-circle,
and the heat from the sun radiates out from the earth,
and some of it is reflected back to the earth, and when
this gas mixture builds up, more is reflected and,
hence, you have the increase in temperature.

The second issue is acid
deposition or frequently called acid rain. There's been
a good deal of publicity about this over the last decade
or so. We've heard about acid rain in Eastern Canada
and Eastern United States. It's caused by sulphur
oxides, emissions of sulphur oxide and nitrogen oxides.
The sulphur oxides come from the processing of fossil
fuels. I'm sure you've heard of sour gas plants and the
SO₂ emissions that emanate from them. And nitrogen
oxides occur from industrial and consumer operations.
For example, the use we make each day of our automobiles
contributes to the buildup of nitrogen oxides in the
atmosphere.

The third problem is smog. That 1
isn't as evident here in Western Canada as in other 2
areas. I suppose we mostly hear about it in relation to 3
California, Los Angeles, but it occurs in Eastern 4
Canada. It occurs, actually, in the Fraser Valley area 5
of British Columbia, and, indeed, in Alberta, Edmonton 6
and Calgary have days when we really have a smog effect. 7

Well, what is being done about 8
these problems? First of all, there have been many 9
discussions taking place on an international basis. 10
There are national and international research programs 11
that are going on, and they have resulted in some 12
agreements that impact on these particular problems. 13

For example, there was an 14
agreement through the U.N. in 1985 with respect to the 15
curtailment of sulphur dioxide emissions. In 1988, 16
there was an agreement on nitrogen dioxide. And, 17
currently, the restriction of carbon dioxide is also 18
underway, and you've probably seen in the press the 19
agreement that Canada signed that would limit the carbon 20
dioxide emissions in Canada in the year 2000 to the same 21
level as in 1990. 22

How does Alberta fit into this 23
total picture? First of all, Alberta is a major 24
producer of energy and, in particular, fossil fuels. We 25
account for 83 percent of the gas that's produced in 26

Canada. Alberta accounts for 80 percent of the oil 1
that's produced in Canada and about 44 percent of the 2
coal. 3

Alberta's share of emissions is 4
substantially higher than our per capita or our share in 5
population. Sulphur dioxide is 15 percent of the total 6
Canadian emissions. And our population is roughly about 7
10 percent. Nitrogen dioxide is 23 percent, and carbon 8
dioxide 22 percent. So Alberta has the highest per 9
capita emissions of these three gases. 10

However, we have to remember that 11
Alberta is an energy-producing province and 75 percent 12
of its oil and gas is actually sold in markets outside 13
of the province. So one can argue that the higher per 14
capita emissions in Alberta are partly caused by the 15
fact that we do produce energy and supply energy to 16
other parts of Canada and into the United States. 17
Canada's share of the world's CO₂ emissions is 2 18
percent, so Canada -- or Alberta's is roughly half of 19
1 percent of the world's emissions. 20

Fossil fuels, as we all know, are 21
particularly important to the province from an economic 22
point of view. The total value in 1989 of production 23
was about \$16 billion. The payment in royalties was 24
about \$2.4 billion, which is about 24 percent of the 25
provincial revenues. So it really is a key factor. In 26

addition, there are something like 250,000 direct and 1
indirect jobs related to the energy industry. 2

I think it's important that 3
we recognize that we're all involved in this problem 4
together. It isn't one of these situations where we can 5
blame everyone else or some other people. If we just 6
look at CO/2 and NOx emissions, we find that they're 7
roughly split about one-third through the energy 8
industry, as I was describing before, producing energy 9
to serve a variety of markets, mostly outside of the 10
province, one-third for other industry and one-third by 11
the public or consumers like you and I. 12

A question that always comes up 13
in these kinds of discussions is what do we really mean 14
by "clean air"? Traditionally, I think it's fair to say 15
that we have defined "clean air" as being air that 16
doesn't have sufficient contaminants that it affects 17
human health or vegetation or animal life. And if we 18
omit that test, we probably say we have clean air. 19

But the unfortunate part or the 20
deficiency in that definition is that it doesn't make 21
allowance for the future. If we think in terms of the 22
buildup of gases in the atmosphere, we might have clean 23
air in Alberta today, but the emissions that take place 24
can cause future problems, and when you look at the 25
long-term aspects, that may not be what we would really 26

classify as clean air. So we must still reduce 1
emissions to avoid the long-term effects of global 2
warming. 3

The question comes up as to how 4
can we reduce emissions? And I think it's fair to say 5
that there are really only four main alternatives: 6

One, we can produce less energy. 7
If we stopped producing gas in the province or oil or 8
oil sands, clearly, we would significantly reduce the 9
emissions that are associated with it. 10

We can use less energy, all of 11
us. We can drive less, we can heat our homes to a lower 12
temperature, et cetera, that kind of thing. 13

Or we can use energy more 14
efficiently. We can insulate our homes in a manner that 15
we still maintain the same temperature but we don't use 16
as much energy to achieve that temperature. 17

Or we can shift to alternate and 18
non-polluting energy sources, such as the sun, wind 19
energy, et cetera. 20

How can we as individuals reduce 21
emissions? And that's really the -- part of the purpose 22
of these meetings, these regional meetings. We want 23
your suggestions. We need to know what kinds of options 24
you would select in terms of achieving that particular 25
goal. 26

I think it's clear that 1
education is an issue with respect to this kind of 2
problem. We have met in seven different communities, 3
and frequently the turnout has been very, very small, 4
two or three people in some instances, which to me 5
suggests that there really isn't a great awareness of 6
the issue. So education is an important feature. 7

Another issue is how do we become 8
convinced individually that we must change our 9
lifestyles in order to reduce emissions? 10

And, finally, we can consider 11
what kind of policies and programs are required for an 12
effective clean air strategy. Again, this is very much 13
the focus of these regional meetings, and we want your 14
suggestions. 15

Some possible developments or 16
programs that might be successful are: We could have 17
new standards that would be developed that would apply 18
to a variety of operations, plant operations, consumer 19
product and so on; we could limit total emissions in a 20
particular area; we could provide incentives to users of 21
energy to develop new technology; we could change 22
current financial incentives that tend to encourage the 23
use of energy; and, of course, we undoubtedly need to 24
carry on with research and probably expand that. 25

Well, that list is far from 26

complete. It's not intended to be a definitive list at
all. It's really just to provide some ideas.

And now what I would like to do
is to call upon people who have indicated a desire to
make a presentation, and we'll do that right away, and
then we'll proceed and see if there are other people
that want to make an impromptu presentation.

The first one is from the Joseph
Welsh School.

STUDENTS:

We are all students from Joseph
Welsh School, and we will go on to other schools near
and far. These are some of the things we have done in
our club these past four weeks: We have visited a
greenhouse, experimented with ultraviolet light and
tried to see what it would be like to live in a place
without smog.

We have also talked about car
pooling, recycling and energy conservation as ways to
improve air quality.

We have been working on this
project for four weeks during our lunch hours and after
school. We have learned a lot, but we think we still
need to know more.

What we will show you tonight are
mini-presentations about things we have learned and are
talking about.

We would like to present a short 1
skit about recycling. We feel that recycling is a good 2
option for reducing garbage and using materials over and 3
over again. Our play is convincing others to recycle. 4

It is a Saturday morning, and the 5
Reese and Henderson family are taking out their garbage. 6
Let's take a look at the families. 7

"I'll drop you off at the bottle 8
depot; I'll take the papers." 9

"And I guess I'll take the 10
garbage." 11

Let's take a look at the other 12
family. 13

"Come you, on two, it's time to 14
take out the garbage." 15

"It's not my turn to take out the 16
garbage. I took it out last week." 17

"No, you didn't." 18

"Yes, I did." 19

"No, you didn't." 20

"Stop fighting. You're both 21
going to take it out." 22

"Now look what you did." 23

"It's not my fault. It smells 24
and it's heavy." 25

"Stop complaining." 26

Thursday, December 6th, 1990

"Oh, good morning, how are you
today?" 1 2

"Oh, it's a terrible day. The
kids are fighting. I don't have time to do anything.
It's even hard enough trying to take out the garbage." 3 4 5

"Well, why don't you recycle it?
It will cut down on your garbage a lot." 6 7

"Recycle? I don't have the time.
And, besides, I need somebody to take care of the kids." 8 9

"Well, why don't you come over
for coffee and we'll show you how our family does it." 10 11

"You can get money for it." 12

"Oh, boy, we get money and
treats. Please, mom, please can we?" 13 14

"I guess so." 15

"Thank you." 16

"This is where we keep our
bottles and cans, this is where we keep our paper, this
is our compost, and this is for the extra garbage." 17 18 19

"All you need is two garbage
cans, a box and an ice cream pail." 20 21

"Please, Mom, can we?" 22

"I would recycle, but I don't
have the time." 23 24

"Well, I guess I could take your
cans and bottles if you have them all ready." 25 26

Thursday, December 6th, 1990

"That doesn't sound fair. You 1
guys are doing all the work." 2
Well, then, I guess I could take 3
it one week and you could take it the next." 4
"Well, yeah, but I need somebody 5
to take care of the kids." 6
"Well, the kids could come over 7
and play and I'm pretty sure they would have a lot of 8
fun." 9
"We could even play Barbies." 10
"Oh, boy, we can play Barbies. 11
Please, Mom, can we?" 12
"I guess we could try it out, as 13
long as you two are responsible for it." 14
"We promise, we'll be 15
responsible." 16
"Okay, I guess so. Let's go in 17
and get ready, okay?" 18
"Let's take our stuff down to the 19
centre. Bye." 20
Our message is to recycle cans 21
and bottles and help preserve our trees and environment. 22
Another big hope is that Red Deer gets the Blue Box 23
program. We did not do this presentation to convince 24
our parents to give us bigger allowances for recycling 25
but because we are concerned about the environment. 26

Thank you. 1

MODERATOR MILLARD: Well, that was excellent. Thanks 2
very much. 3

STUDENTS: There's more. 4

Here we are in the Speedy house. 5

It is a typical morning and Isobel is in the bathroom 6
getting ready for school. 7

"Oh, it's so hard to get up on 8
these cold mornings. I'll turn on the shower and get it 9
nice and warm. Meanwhile, I'll turn on the tap to brush 10
my teeth. Now, where's the toothbrush and the 11
toothpaste? It must be here somewhere. Oh, here it is. 12

That shower sure is heating up 13
this bathroom. It's getting quite nice in here. 14

Oh, this feels good. I could 15
stay in here for an hour. Hey, it's getting cold, and 16
I've only been in it for half an hour and all the hot- 17
water is gone. 18

Now, where is my hair dryer? 19
Boy, it takes a long time to dry my hair." 20

Meanwhile, Isobel's mother is in 21
the kitchen trying to get her husband and daughter off 22
to work and school. 23

"Boy, these mornings sure are 24
hectic. Isobel needs her blouse for school. I'll throw 25
it in the washing machine so it will be ready by the 26

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time she's ready to leave. 1

Out of spoons again. Well, I'll 2

just turn the dishwasher on and clean three for us. 3

Now for lunch. Let's see, 4

salmon? No, they had that last week. Baloney? But 5

Isobel will complain. Is there anything at the back? 6

What's in this container? Ooh, they won't like that. 7

What about tomato sandwiches, or do I have some 8

meatloaf? There just doesn't seem to be anything 9

interesting in the fridge. Maybe I'll send some money 10

and let them buy lunch." 11

Mr. Speedy is up and waiting for 12

breakfast. He is in the living room getting the morning 13

news. 14

"That sun sure is bright this 15

morning. I'll draw the curtains. 16

Now I can't see. I'll turn on 17

the lights. 18

Oh, it's cold in here. I'll turn 19

up the heat. 20

Now, let's see what's on t.v. 21

Not much. Well, I'll read the paper. Maybe something 22

will come on. This ad can go in the garbage and this 23

and this. In fact, all of this can be thrown away. 24

I had better go check on Mildred 25

and see if she's ready for breakfast." 26

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"These bills came for you, dear. 1
I believe they are the electricity and gas bill." 2
"Unreal. This is ridiculous. 3
I'll be in the poor house if this keeps up. We have to 4
start cutting back." 5
After much discussion, we looked 6
in on the Speedy family one week later. Isobel is again 7
in the bathroom. 8
"I'll start with my teeth, first 9
the toothbrush and the toothpaste and one glass of 10
water. No more running the tap. 11
Now I'll turn on the shower. 12
Lather fast, rinsed, washed and out in five minutes. I 13
bet that saved water and electricity. 14
Now for a towel. It's faster 15
than a hair dryer and much cheaper." 16
Mrs. Speedy is still in the 17
kitchen trying to get her family off to work. 18
"Out of spoons again. Well, I'll 19
just rinse a couple out in the sink, no use running the 20
dishwasher for so few items. 21
What is Isobel going to wear? 22
She had better want something that's clean, because I'm 23
not running the washing machine until I have a full 24
load. 25
Now for lunch. I'll decide what 26

I want from the fridge before I open it. That way, I'll
save electricity." 1 2

Mr. Speedy is up now and waiting
for breakfast. 3 4

"Good morning, good morning. 5
I'll draw the curtains and let the sun in. That way, it 6
will heat up the house and I won't have to turn on the 7
lights. 8

Now, let's see, should I watch 9
t.v. or read the paper? Maybe t.v. Boy, it's cold in 10
here. I'll go put on a sweater. That way, it's cheaper 11
and I don't have to turn on the furnace and heat up the 12
whole house. Oh, and if I'm leaving, I'll turn off the 13
t.v. No use having it play to an empty room." 14

This is just the beginning of a 15
many-act play. There are so many things more they could 16
do. The Speedy family has become energy-wise. The 17
important thing is to be aware. We must conserve 18
energy, whether it is to save our natural resources, 19
protect our environment or just to save money. 20

RICK MOORE: These folks investigated the 21
whole notion of car pooling as a way of reducing NOx's 22
and other things. They would like to tell you a little 23
bit about the pro's and con's of it. 24

STUDENTS: "This is the good things about 25
car pooling:" 26

Thursday, December 6th, 1990

| | | |
|------------------------------|-----------------------------------|----|
| | "Number 1, it saves fuel and | 1 |
| money." | | 2 |
| | "Number 2, less pollution equals | 3 |
| better health." | | 4 |
| | "Number 3, slows down global | 5 |
| warming." | | 6 |
| | "Number 4, gets family and | 7 |
| friends together." | | 8 |
| | "Number 5, reduce wear and tear | 9 |
| on vehicles." | | 10 |
| | "Number 6, saves natural | 11 |
| resources." | | 12 |
| | "And number 7, you'll have a warm | 13 |
| car on a cold day." | | 14 |
| RICK MOORE: | There are some downsides, though. | 15 |
| STUDENTS: | "These are the bad things of car | 16 |
| pooling." | | 17 |
| | "Number 1, inconvenient to | 18 |
| organize." | | 19 |
| | "Number 2, you do it for somebody | 20 |
| else." | | 21 |
| | "Number 3, if the vehicle breaks | 22 |
| down, everyone is involved." | | 23 |
| | "Number 4, you generally have to | 24 |
| be ready to leave earlier." | | 25 |
| | "Number 5, more kids, more messy | 26 |

car." 1

"And number 6, if one person is 2

late, everybody is late." 3

RICK MOORE: We'll just need one second. We 4

would like to set up one more prop here, and they would 5

like to do a little play that will reinforce these 6

points here for you. 7

STUDENTS: "Hey, Sabrina, I heard your car 8

died." 9

"Yeah, we can't get parts until 10

Wednesday." 11

"Well, how are you getting to 12

school tomorrow?" 13

"You can car pool with us." 14

"What's car pooling?" 15

"Sounds like a pretty stupid 16

idea." 17

"That's for sure. What's car 18

pooling anyway?" 19

"Car pooling is when a parent 20

picks up a few kids on the block." 21

"New Kids on the Block!! Ooh!!" 22

"I didn't say New Kids on the 23

Block. I said a few kids on the block." 24

"What's so good about car 25

pooling?" 26

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"Well, we save fuel and money." 1

"And less fuel, we have less 2
gases in the air." 3

"Yeah, and that's better for us." 4

"We can also slow down global 5
warming and live longer with better health." 6

"Sounds good to me, but I'm still 7
not convinced." 8

"Me neither. Sounds like a real 9
inconvenience." 10

"Well, it may sound like an 11
inconvenience, but it makes less pollution than three or 12
four cars would." 13

"Yeah, but that also makes less 14
sleep for me. I'll have to get up a half an hour 15
earlier so I don't miss my ride. That will wreck my 16
five-year record for being late for school every day." 17

"Well, it beats walking, doesn't 18
it?" 19

"True." 20

"You know, I just had a thought: 21
Some days I have to swim right after school. Bianca, 22
your mom might want to drive me to the pool, wouldn't 23
she?" 24

"Probably not. Usually we're too 25
busy to drive other people around." 26

1 "Well, car pooling has some
2 problems, doesn't it? But another good thing about it
3 is you get to be with your family and friends more."

"That's important to me." 4

"Me too." 5

"I don't know if I'll ever agree, 6
but we should try car pooling out once and see if it can 7
work." 8

"Yeah." 9

"Yeah." 10

"Let's go home. I'm getting
chilly." 11 12

"Yeah, let's go home and tell our parents. They need some more education." 13 14

"Right." 15

STUDENTS: Our group has been thinking a lot 16
about things, and this is what we think. 17

"If we look at the big picture, we're worried about the ozone layer, oxygen and greenhouse gases like carbon dioxide. Trees play a very important part in our environment."

"We have a problem. We are cutting down too many trees, not taking care of them and not replanting enough. We have to do something."

 "Some of the things we can do are 25
spread out the cutting." 26

"Replanting as many trees as we
cut down." 1
2
"Make people recycle more paper.
It takes less energy to recycle paper than to make new
paper." 4
5
"What would be even better would
be to tell people not to use as much paper." 7
8
"Everyone needs to know more
about this problem and what they can do." 9
10
"This is what we think about
Christmas trees." 11
12
"Tasha, Melissa, Joanne and
Donald were chosen to pick a Christmas tree for their
class. When they got together, though, they had a
problem." 15
16
"Let's go buy the class a real
tree." 17
18
"Yeah, I just love the smell, and
it's a real tradition in our family." 19
20
"But I don't like real trees.
Someone has to cut them down, and I don't think that's
right." 22
23
"Now we're killing our trees with
our environment." 24
25
"Oh, yeah, I remember our clean
air club where I learned trees put oxygen in our
26

atmosphere." 1

"And that they take up greenhouse 2
gases like carbon dioxide naturally to protect the ozone 3
layer and to prevent the greenhouse effect." 4

"You know, it also takes a lot of 5
energy to make artificial trees, and we can't recycle 6
them." 7

"But they do last a long time." 8

"Well, remember, you have to take 9
it and put it away after." 10

"I think it would be okay to cut 11
down trees if nature replanted every one we cut down." 12

"Oh, we just don't know." 13

"This is a common argument. 14
There are many good points for both sides. Everyone has 15
a choice that they make, but we need an informed 16
decision. Everyone needs more information." 17

RICK MOORE: We apologize if you couldn't 18
quite hear the students at the back. Their voices I 19
guess haven't caught up to the rest of their body size 20
yet, but I can assure you that they have learned a great 21
deal from our studies over the last few weeks. 22

As you see from the 23
presentations, our students are more than interested in 24
the issues that we've been discussing, and while it's 25
obvious that their knowledge is perhaps on a different 26

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level than on the presentations you will receive, they
nevertheless are learning and involved.

Many of the ideas that come out
of this Commission will probably influence their way of
life, since it is their world that they will be
inheriting fairly soon, I guess already. The Commission
should realize the importance of educating these
children so that they can treat our earth with the
respect needed so that they and their children can
continue to enjoy it.

As a specific suggestion, this
group might think about recommending to the Minister of
Education that the study of environmental issues be
given a higher priority. Schools need more time,
resources and information. This information has to be
factual, specific and as current as possible if we are
to promote informed decisionmaking. Thank you for this
opportunity to be with you tonight.

MODERATOR MILLARD: Well, thanks very much. I think
that was an excellent start for our evening.

The next presentation is by Bill
Stephenson of Alberta Gas Ethylene.

BILL STEPHENSON: Mr. Chairman, ladies, gentlemen
and students: First of all, it's very enlightening to
see the base of education that's being developed by the
students in our school, and I want to commend Joseph

Welsh School on their presentation. Maybe they can 1
teach some of us older individuals how to do things 2
right. 3

I welcome the opportunity for 4
this verbal presentation to the Clean Air Strategy for 5
Alberta. I am Bill Stephenson, Vice-President of the 6
Alberta Gas Ethylene Company Limited, a wholly-owned 7
subsidiary of Nova Corporation of Alberta. I am Plant 8
Manager for the olefins manufacturing facilities located 9
at Joffre, Alberta. 10

Nova Corporation is a member of 11
the Canadian Chemical Producers Association and supports 12
both the verbal and written presentation that was 13
presented in Edmonton on Friday, November the 16th. A 14
Nova verbal presentation regarding our Medicine Hat 15
methanol manufacturing facility was offered as input on 16
Wednesday, November the 28th. I will be brief in my 17
remarks and attempt to avoid duplication of input 18
contained in the previously referenced presentations. I 19
wish to use our Joffre facilities as an example for the 20
basis of my suggestion. 21

The ethylene manufacturing 22
process is based on the thermal cracking of ethane, a 23
component present in natural gas. Thermal cracking of 24
ethane yields significant amounts of hydrogen, which are 25
augmented by natural gas to achieve the fuel quantities 26

required by the manufacturing process. Total energy, 1
fuel and electrical power constitutes greater than 15 2
percent of our direct manufacturing costs. We have 3
since start-up of the first ethylene plant in 1979 4
continuously improved our operating energy efficiencies 5
as is necessary by the magnitude of this direct cost and 6
its effect on our international competitiveness. 7

Our goals of energy efficiency 8
improvement continue to result in lower atmospheric 9
carbon dioxide and nitrous oxide releases per unit of 10
ethylene production. Fuel energy consumption has 11
declined by 8 percent per unit of ethylene since 1986. 12
Total mass has increased as a result of elevated 13
production levels, but continued efforts for competitive 14
energy efficiency will gradually erode this consequence 15
of the elevated production levels. 16

Other activities have reduced our 17
carbon dioxide and nitrous oxide emissions. The carbon 18
dioxide included in our ethane feed stock is now used 19
for enhanced oil recovery. Prior to 1983, this carbon 20
dioxide was discharged to the atmosphere. Some of our 21
hydrogen is now used as feed stock to produce anhydrous 22
ammonia. This synergistic manufacture of ammonia 23
resulted in a 25 percent fuel energy savings for this 24
product, thus lessening atmospheric discharge of carbon 25
dioxide and nitrous oxides, while those of the ethylene 26

manufacturing process increased, as we had to replace 1
the hydrogen with natural gas. The net effect is 2
approximately an 8 percent regional reduction and 5 3
percent provincial reduction in carbon dioxide. 4

I have reviewed our ethylene 5
manufacturing process and synergistic processing 6
opportunities to emphasize that international 7
competitiveness is critical and will continue to drive 8
energy efficiency programs, and synergistic 9
manufacturing opportunities can result in lower 10
atmospheric emissions. 11

I would now like to offer 12
comments on two sections of the Clean Air Strategy for 13
Alberta. 14

Global-common issues require a 15
global protocol which establishes the same parameters 16
for like type industries. Our ethylene manufacturing 17
facilities are new and have included technology to 18
achieve energy efficiency, which resulted in reduced 19
emissions. 20

Our second ethylene plant started 21
up in 1984 as 20 percent more energy efficient than our 22
1979 facility. The process design that was completed 23
for our proposed third facility was 15 percent more 24
energy efficient than our second facility. 25

Alberta-manufactured ethylene 26

utilizes natural gas fuel, which yields lower total 1
manufacturing carbon dioxide and nitrous oxide emissions 2
than oil-based petrochemical production which occurs in 3
other parts of North America. Regionally-or 4
nationally-imposed targets could result in uneconomic 5
and unachievable expectations. International demand 6
could result in production in other global locations 7
which may not have equal parameters and, thus, the 8
global emission situation would worsen. 9

I suggest that the solutions 10
require Alberta to simulate global and national 11
parameters for common global issues which retain a level 12
playing field for Alberta petrochemical production. 13

I commend the process being 14
utilized by Alberta in developing our clean air strategy 15
and suggest the best solutions to regional issues will 16
only occur if the stakeholders are involved in a 17
multi-apartheid consensus process which weighs benefits 18
and consequences in a total comprehensive manner. 19

As an example, an Alberta target 20
for CO₂ reduction could be globally offset by a few 21
coal-fired power-producing facilities in other 22
international locations. Alberta contributions to 23
global improvement could have rendered our facilities 24
non-competitive in the process. Solutions to any 25
specific issue, such as carbon dioxide, must be 26

distributed equitably across the major contributors. 1

Our Joffre natural gas fuel 2
consumption approximates that used for home heating in 3
Red Deer. Our individual automotive fuel consumption is 4
also a significant contribution to various atmospheric 5
emissions. Meaningful and achievable reduction targets 6
must be equitably shared across the total contributory 7
base. Home efficiency standards and automotive fuel 8
consumption targets or alternative fuel technologies 9
required in specific regions must be included to achieve 10
our results. 11

Stakeholder-developed solutions 12
must consider a total-life-cycle environmental balance. 13
Prevailing practice seems to be targeted problems and 14
command and control solutions. Best net reductions must 15
be identified based on a comprehensive environmental 16
contribution of all inputs to the manufacturing 17
processes. 18

As an example, I offer the case 19
of greenhouse gases. A full environmental balance of 20
alternative materials may reveal that one has less 21
atmospheric consequence. This would be true for paper 22
versus plastic production. Other concerns for solid 23
wastes would need full evaluation to define least total 24
environmental consequence. 25

A recent hot-selling item is the 26

plastic composting cone. I query if a 1
least-environmental result has been achieved, as we have 2
traded a solid waste issue for one which permits 3
multiple small-source methane contribution to the global 4
warming gases. Ground water contamination could also 5
become conventional. 6

I would now like to make some 7
suggestions regarding economic instruments. I had the 8
opportunity to participate in the Clean Air Strategy for 9
Alberta workshops conducted in Edmonton during 10
September. Additional economic instruments may be 11
necessary but must be developed such that the polluter 12
pays and that international competitiveness is 13
sustained. Economic instruments which become tax 14
revenues must be separated from general tax revenue and 15
designated exclusively to the solution of the problem 16
which produced the pollutant. Such economic instruments 17
should be designed to reflect consumptive use of the 18
particular problem pollutant. 19

Our ethylene plants use a large 20
quantity of ethane, a hydrocarbon material. These 21
carbon elements are locked into the various derivative 22
products manufactured from ethylene and are not released 23
as carbon dioxide and nitrous oxides, as are those 24
carbons which are fuelled as natural gas. Thus, any 25
specific carbon consumption tax must exclude those 26

quantities which do not produce atmospheric emissions. 1

Alberta legislation must be 2
consistent in its promotion of the priority 3
environmental agenda. Currently, all machinery and 4
equipment in our facilities is accessible for municipal 5
taxation purposes. Thus, additions to improve 6
identified air emission goals become an additional tax 7
burden without offsetting gains in productivity. This 8
can produce a deterrent rather than promote facility 9
investments specific to solving air emission problems. 10

Economic instruments, if they 11
must be applied, must recognize the priority issues in 12
the total environmental agenda. Our limited resources 13
must be focused to achieving the best overall result for 14
air, water and land. This requires a strict discipline 15
of prioritysetting. 16

In summary, I suggest that we 17
have to adopt a regime of continuous year-over-year 18
improvement based on applying technology which retains 19
our internationally-competitive position. Our strategy 20
must include a role of catalyzing the global parameters 21
for global issues which retain a level playing field for 22
Albertans. Stakeholders must define the desire and 23
achievable results in a manner which recognizes the 24
limited resources available to our total society. 25
Nova's Joffre petrochemical facility is committed to the 26

responsible care process of the Canadian Chemical 1
Producers Association and has had a continuous program 2
which annually reduces our priority air emissions. 3

I thank you for hearing my verbal 4
presentation and would be pleased to clarify any 5
questions arising from it. 6

MODERATOR MILLARD: Thanks very much. 7
Are there any questions? I take 8
it not. 9

The third presentation is Teresa 10
Neuman and Loretta Smith. 11

LORETTA SMITH: Well, Mr. Moderator, ladies and 12
gentlemen, my name is Loretta Smith, and this is my 13
friend Teresa Neuman. We belong to a local environment 14
group called Citizens' Action Group on the Environment. 15
We have here something that we want to share with you. 16

Environmental issues can know no 17
political boundaries. Pollution kills first without 18
asking what a person's political beliefs are or are not. 19
Therefore, any environmental concerns must be agreed on 20
by all and then dealt with by all. 21

The first thing on the agenda of 22
any discussion is to state whether there is a problem or 23
not, and if there is, what the problem really is about. 24
We, Teresa and I, will endeavour to illustrate the 25
magnitude of the problems we all face in transportation. 26

We believe the real problem is the manufacture and
operation of expensive, unsafe pollution-causing motor
vehicles. In addition, we will give some insight into
the possible use of public transit.

The greenhouse effect is real,
and part of the reality is that the largest single
source of the pollutants that cause it come from the
transportation sources. As auto pollution authority
Michael Walsh puts it, motor vehicles account for more
of the world's air pollution than any other human
activity. Individually, a vehicle would contribute
seemingly insignificant amounts of the pollutants which
cause environmental destruction, but collectively, the
impact of the 400 million motor vehicles on the world's
roads is staggering.

Motor vehicles burn almost 50
percent of the world's dwindling fossil fuels. Although
most vehicle emissions are light gases, the pollutants
are measured by weight. The average car driven in
Canada will spill 34.4 kilos of hydrocarbons a year,
4,029.3 kilos of carbon dioxide, and 29.6 kilos of
nitrogen oxide. Multiply the emissions of each car by
the over 12 million registered cars in Canada and you
begin to have a handle on the magnitude of the problem.

Close to 300 million litres of
motor oil vanishes each year into the Canadian

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environment. That's almost eight times more oil than
spilled when the Exxon Valdez ran aground off Alaska in
March of 1989, causing North America's worst oil spill.
An estimated 40 percent of the world's nitrous oxides
and volatile organic compounds which create smog and
acid rain, 70 percent of the globe's man-made carbon
monoxide, which can be toxic, and about 25 percent of
North America's production of carbon dioxide, which is
warming the atmosphere, are produced by motor vehicle
emissions.

Automotive exhaust gases have
long been recognized as a direct hazard to driving
safety. As a major contributor to smog, these emissions
frequently have curtailed visibility to the point where
automobile accidents ranging from minor fender-benders
to more serious life-threatening and even fatal crashes
have occurred. The health hazard posed by the various
emission pollutants is of a far more serious nature than
the problem of reduced visibility. I have here a quote
from Professor MacFarland (phonetic) of Harvard, who
summarized studies of carbon monoxide as follows:

"Carbon monoxide poison is an ever-present
possibility in the operation of motor
vehicles. The problem is becoming
increasingly serious because of the increased
density of smog and the concentration of

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idling vehicles in the metropolitan areas. 1
Small amounts of carbon monoxide are absorbed 2
rapidly by the blood stream, resulting in an 3
oxygen deficiency that may at first be 4
unnoticed by the individual. The initial 5
reaction to carbon monoxide poisoning consists 6
primarily of lower attention, difficulty in 7
concentration and retention, slight muscular 8
incoordination, sleepiness and mental and 9
physical lethargy. Carbon monoxide has the 10
additional effect of reducing body tolerance 11
to alcohol and certain drugs. 12
Through replacing normal carbon dioxide in the 13
blood, carbon monoxide sets up a situation 14
where either drugs or alcohol, both taken 15
within moderate or prescribed limits, becomes 16
dangerous to the driver. Bumper-to-bumper 17
traffic pours forth a stream of the deadly gas 18
for both motorists and passengers, not to 19
mention any pedestrians walking by. In other 20
words, you drive as you breathe." 21

Transportation also takes up 22
space. The environmental group Friends of the Earth 23
estimated each kilometer of road or highway takes up 24
about 6.5 hectares of land, remembering that 1 hectare 25
is equal to approximately 2.471 acres. Highways consume 26

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the largest amount of space per kilometer. Our cities
devote one-third of their area to roads, streets and
parking lots. Even relatively small roads can cause
major destruction and controversy when they run through
environmentally-sensitive areas. Hundreds of thousands
of acres of prime agricultural farmland have been
destroyed in order to make roads, highways and parking
lots, while at the same time Canada's population
continues to increase.

On September the 13th, 1899, New
York real estate agent H.H. Bliss stepped off a trolley
car into history as the first-known auto fatality in
North America. Since Bliss, more than 3 million
Americans and Canadians have died in traffic accidents.
Traffic deaths have grown every decade of this century
in Canada and every decade in the United States except
the 1940s and the 1980s. Over the last ten years, 1979
to 1989, 81,543 Canadians have died in automobile
accidents. This figure was taken from the Red Deer
Advocate September the 14th, 1989. And this figure
works out as an average loss of 8,154 lives each year.
There were estimated 42,042 Canadians killed in World
War II, which was 1939 to 1945, and this figure works
out as 7,007 lives each year.

Far more Canadians are injured in
automobiles than by any other mode of transportation.

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Young persons are often the victims. In 1985, 52
percent of persons killed in auto-related accidents were
between the ages of 15 and 34. According to the
Canadian Automobile Association, it cost the average new
car owner some \$7,000 a year, not including car pooling,
to own and operate a vehicle. However, car drivers
directly pay only some of these costs.

Michael Renier (phonetic) of the
Global Watch Institute in Washington believes the
public's passion for cars might be cooled if drivers had
to pay the full cost, which is an additional estimated
\$3,000 per car annually, which would then be used to
maintain roads and highways, parking lots and increased
health care premiums. Environmental problems associated
with traffic accidents and automobile pollution would
also be covered. If these costs were incorporated into
the cost of fuel, Mr. Renier estimates gas prices would
more than triple.

"Prices are something understood
by all people, even the ecological illiterate", says
James Roberts, a research assistant at Laval University.
The money saved by not owning and operating a motor
vehicle could go towards housing, towards a retirement
fund, to an improved standard of living.

TERESA NEUMAN: There are solutions. According
to research from the outdoor advertising industry, the

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average car in a Canadian city is carrying only 1.3
people. What we need are higher densities per vehicle.
Car pooling achieves that, but the maximum impact comes
from public transit. A single 40-foot transit vehicle
replaces about 50 cars in rush hour. At peak hours, two
40-foot buses can carry 130 people. Total space
occupied? 80 odd feet of a single lane. To carry the
same number of people given average ridership of 1.3
people per car requires that the single lane be
stretched to some 1, 500 extra feet, to about a third of
a mile.

Public transportation means less
congestion and less pollution. Building and maintaining
city thoroughfares requires enormous quantities of land
and resources. If more drivers were to abandon their
cars for short in-city trips by public transit, two more
environmental problems could be greatly reduced. The
expansion and maintenance of a public transit system
also requires land and resources, but it is certainly a
better trade-off.

It's hard to attract riders to
over-crowded, often unreliable transit systems. People
won't use a transit system until it's big enough to
provide a convenient service. To encourage the switch
from private to public modes of transportation, the goal
must be an efficient and integrated transportation

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system that offers commuters as many alternatives as
possible. Walking short distances or to neighbourhood
stores or to friends' homes is one alternative to
driving cars. For people living in the suburbs, car
pooling or driving to the nearest transit centre could
be possible alternatives.

Perhaps one of the most
overlooked modes of transportation is the bicycle. A
bicycle burns renewable calories and so is
non-polluting. A bicycle tops the list in fuel
efficiency for outshining anything else on the road. In
a car, one liter of gasoline provides 10.5 passenger
kilometers, in a city bus, about 42 passenger
kilometers. On a bicycle, the energy equivalent
provides more than 425 passenger kilometers.

Right now, bicycle commuting is
too dangerous on congested city streets. To encourage
suburbanites to make the switch from private vehicle to
bicycle, an effort and commitment has to be made by city
planners and politicians. More specific bicycle paths,
two-wheeler parking areas, bike and ride centres to
encourage people to make the switch, as well as washroom
and shower facilities could be made available. Once
again, the bottom line is an integrated transportation
network that provides space and facilities for cyclists.

We realize that the transition to

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alternative methods of transportation will take time. 1

In the interim, steps must be taken to make the 2

privately-run automobile less environmentally 3

destructive. Following are a few suggestions: 4

According to Friends of the 5

Earth, raising the average efficiency of new cars to 6

five litres per hundred kilometers or 56.5 miles per 7

gallon driven by the year 2000 will have a significant 8

impact on gasoline consumption and CO/2 emissions. In 9

fact, this increase will mean over 60 million barrels of 10

oil and 26 million tons of CO/2 pollution would be saved 11

annually by the year 2005. 12

The Alberta Government should use 13

whatever power they have to push for legislation on new 14

fuel efficiency standards which would stringently be 15

enforced and would provide sanctions for manufacturers 16

who violate those standards. Cars could be tested year 17

by year for fuel efficiency and emission control, as is 18

being done in some American states, before registration 19

is renewed. Car maintenance should be made more 20

economically feasible for the average car owner so that 21

vehicles are kept in top running form. 22

Another idea we had was that tax 23

incentives could be given to companies who provide 24

programs that encourage their employees to be more 25

environmentally-conscious by car pooling, taking public 26

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transit, bicycling or walking to and from work. 1
Monetary incentives could be provided for companies to 2
convert their transportation fleets to alternative 3
fuels, such as natural gas, propane, diesel, electricity 4
or, ultimately, solar power. 5

Inter-city travellers can also 6
learn to rely on public transportation more. How we 7
travel from city to city is just as environmentally 8
important as how we travel from home to work. Once 9
again, energy efficiency per passenger kilometer is the 10
key issue. To travel by train takes 270 b.t.u.'s per 11
passenger kilometer, by bus, 320. By small car with two 12
passengers, that jumps to 1,000 b.t.u.'s per passenger 13
kilometer, and a Boeing 767, 1,990 b.t.u.'s per 14
passenger kilometer. Obviously, trains and buses are 15
the most efficient modes of cross-country travel. 16
Unfortunately, we've been abandoning them in droves in 17
the last few years. 18

Here are some statistics from 19
Transport Canada: From 1984 to 1987, the number of 20
passengers choosing air travel steadily increased, 21
reaching 18.9 million in 1987. In 1981, 8 million 22
Canadians travelled by Via Rail; in 1987, the number of 23
passengers had fallen to 5.9 million, a decline of 26.3 24
percent. The total number of inter-city public 25
transportation passengers declined from almost 60 26

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million in 1980 to about 46 million in 1987, with buses 1
losing about 90 percent of that shortfall. Cheaper 2
fares and better service from the airlines as well as 3
more money in passengers' pockets account for part of 4
the decline in train and bus travel; however, a large 5
part of the problem was the Federal Government's 6
decision to abandon Via Rail. 7

Greater emphasis must be placed 8
on the education of children and adults. Curriculum 9
changes or expansions should include environmental 10
topics such as global warming, pollution, acid rain, 11
alternative energy sources, protection of natural 12
habitats and wildlife. People of all ages must push for 13
legislation at all government levels to ensure 14
responsible reforestation and management of existing 15
wooded areas by developers, industry, city planners and 16
private landowners. Tree planting projects, such as 17
that of the citizen action groups on the environment 18
Trees by 2000 should be encouraged and supported. The 19
importance of trees and their absorption of CO₂, 20
production of life-giving oxygen and filtering of other 21
air pollutants should be recognized and utilized to its 22
full potential. 23

LORETTA SMITH: In closing, we would like to say 24
that the automobile has transformed a lot more than our 25
atmosphere. It has changed the face of our cities and 26

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suburbs and the way we live in them. We believe Henry 1
Ford would be appalled by the sheer magnitude of modern 2
problems brought about by the very success of the car: 3
Air pollution, acid rain, mis-used natural resources, 4
excessive noise, destruction of land and wildlife, human 5
death and suffering, and all on a grand scale. 6

I will read a poem written by my 7
ten-year-old daughter Lisa that I believe is an 8
embodiment of the situation we now find ourselves in: 9

Our world is like a round garage 11
With many cars and people 12
The air is filling up with gases 13
And soon there will be no people 14
Nothing but toxic fumes 15
Houses standing empty 16
No animals can live 17
No shrubbery or life forms 18
Just emptiness and silence 19
Nothing more, nothing less. 20

Thank you for giving us the 21
opportunity to speak with you tonight. 22

MODERATOR MILLARD: Thank you very much. Those were 23
very interesting statistics. 24

Now, that completes the list of 25
people that indicated that they wished to make a 26

presentation. Is there anyone else that would like to?

Yes, sir?

UNIDENTIFIED SPEAKER: To me, this is very impromptu, this presentation, because I was driving around looking for a job today and happened to stop here, was going to have a cup of coffee and noticed this ad for this little get-together here tonight.

It's kind of ironic; some schoolteacher I'm sure mentioned that these kids will inherit this earth and then he said I think they already have inherited it. And when I was in Grade 3, I seen a presentation about the environment, and it had to do with the Rhine River in Germany, and here I am 33 years old and we're still talking about cleaning up this earth. We're still talking.

I inherited this earth. I started a company to clean this earth up, and nobody wants to pay the bill. To be exact and to be honest, there are some people out there that definitely do and try a whole lot harder than the whole rest of them, but they are bucking the system and have to pay extra dollars, when they see the guy on the other hand that doesn't have to, and it doesn't make sense to him economically to do that. And that is true; he doesn't want to pay my bill to clean up something when somebody down the next township definitely doesn't have to spend

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the same dollars.

We're still talking about cleaning it up, and how much longer are we going to talk about it? I'm 33. I think when I'm 55 I'll still probably be able to stop somewhere in another town and bump into the same kind of a situation as what I'm seeing here tonight. We will still be talking and we'll still be putting on these beautiful presentations and boards and elaborate computers and et cetera.

I need my truck, and I need it. It's a diesel, and it burns lots of it, and I used to have 108 people working for me, and we burned lots of fuel and had lots of telephone time, and I need it to get to talk to that gentleman and that gentleman and that gentleman to see if he's going to give me a job to clean up his problem. And so does everybody that got here needs their truck.

I also farm. I need my big diesel tractor to pull that plow and that cultivator and to pull that combine and feed them cows when it's 50 below so that everybody out there in that restaurant can have a steak. And I hope they're eating lots of steak. I don't think they're eating as many as they used to, but hopefully they'll start eating more come July.

But I don't know why we can put on all these elaborate things. We're still talking

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about it, and I'm proof of that, we're still talking, 1
and I'll guarantee you when I'm 55 we'll still be 2
talking about it. 3

You talked about a war that 4
killed so many people compared to cars? We could have a 5
war tomorrow and it's going to be over what is one of 6
the major pollutants that we were just talking about, 7
gas and oil. I'm not really worried about that war or 8
the other wars or how many kids got killed in cars, 9
because I could be the next one to get killed in a car. 10
Henry Ford started that. The Indians said that there 11
was pollution the first time they seen the gull-darn 12
railroad go across, and it's still going across, and 13
we're still going to be talking about it. 14

I don't think this is ever going 15
to get cleaned up. Economically, it is just not 16
feasible. We can't change it 110 percent. We can make 17
some improvements, but we're not going to clean it up, 18
and I don't think all the words "Environment" printed 19
all over everything, caps, T-shirts, schools, 20
billboards, sides of airplanes, cars, pick-ups, you name 21
it, is not going to make a world of difference. We've 22
got to be realistic. We've got to live in a certain 23
way, and we've got to feed the people in a certain way, 24
and we have an industry that is supplying that to us, 25
and that's the oil and gas industry. And they have to 26

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keep producing and keep looking and keep exploring, 1
whether it's in Canada, United States or in Iran where 2
they're going to have the next bomb drop. I think it's 3
all nice to talk about it, because we've been talking 4
about it since I was in Grade 3, and I think, like I 5
say, that we're still going to be talking. 6

It was nice to hear all them 7
statistics about cars and how many people are going down 8
the road. I'm driving around all over today for an hour 9
by myself. I don't need anybody else sitting in my 10
truck telling me how to get there. I'm quite capable of 11
reading the road map, and until I can't read it, I guess 12
I can't drive and then I'll have to hire a driver. 13

So as far as all these great car 14
pools and getting everybody stuck on buses -- and a 15
train, the doggone train won't get people where they 16
want to go. People between Calgary and Edmonton, they 17
don't want to travel all over hell's creation here. I 18
don't know why the railroad wasn't built right alongside 19
the four-lane highway so you can get them right to where 20
they've got to get to. I mean, we're travelling -- 21
they're travelling right up and down the route that 22
they're hauling the grain. It just don't fit. If we're 23
going to build this kind of stuff, it's got to be 24
efficient and we've got to change things. That's my 25
opinion on it. 26

Everybody here got here somehow. 1

We're burning gas and oil to get here. We're burning 2
lots of it here to get these lights on, and we have to 3
do it, so you're going to have some waste. I wouldn't 4
be out looking for a job either if we were recycling the 5
burned tires that went up in Montreal or Ontario. The 6
guy up in Edmonton which has got another ten billion of 7
them, he's sitting there and he's saying, hey, I would 8
like to do something with it. There's nowhere to put 9
it. 10

We can talk recycle and, man, you 11
can keep talking about it, but until we've got a place 12
to put that, to recycle it, and a place to get rid of 13
that recycled product, what are you going to do with it? 14
We're going to keep digging, we're going to keep 15
burying, and it's just that simple. I don't see any 16
changes. It just costs too much money to make these 17
changes. 18

And that's all I have to say 19
about the subject. Probably lots more, but that's all 20
I've got to say about this topic. 21

MODERATOR MILLARD: Good. Thanks very much. 22

Does anyone else wish to make any 23
comments? 24

ELMER KURE: Well, Mr. Moderator, I came here 25
mainly to listen, because I'm retired now, Vern, and I 26

can afford the luxury of listening to people and not 1
have to be under the gun, so to speak, to come up with 2
some solution. 3

Obviously, the previous speaker 4
has thought about this a great deal and is not sure that 5
we can change our lifestyle to the extent that it's 6
needed to do something about the quality of the air. 7
And some of us -- I believe that, Mr. Chairman, that we 8
have been in the last year almost snowed under with good 9
stuff. I mean good studies and concerns and policies 10
that are being put forward both by federal and 11
provincial governments to I guess get green overnight. 12
Some of us have been green most of our life, probably 13
because we were brought up that way. 14

And I was brought up on the farm 15
and farmed for 30 years, and I had a lot of time to 16
think about the issues and I had, I guess, a little 17
concern for wildlife that led me into the public 18
relations field in the last few years, but I have had 19
the time to read most of the expert witnesses before the 20
Parliamentary Committee on global warming, and the stack 21
of Hansards are about that high now that McDonald and 22
his committee have heard. And there has been solutions 23
proposed in almost every field, almost every field from 24
the production of electric energy through the various 25
means that we're familiar with, even here in this 26

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province, to the operation of the automobile.

I think the kids made a really good point that -- they were saying that, if each of us does what we can at our particular individual level and we start from that point, we can do something and it will amount to something in terms of total impact. There's no question about it. A very little change in our lifestyle will make a great deal of difference to the atmospheric pollution in this world.

Despite the fact that Canadians may be only -- contribute around 2 percent to the global CO/2 doesn't mean that we have any less responsibility. In fact, I think it really says that we have a great deal more responsibility because how are we going to convince the rest of the world, third world countries in particular that are going into looking at lifestyles like ours? Obviously, most of them won't achieve that. We will probably find that we have to change our lifestyles a bit, quite a bit, but I believe the technology is out there.

I heard a -- or read presentations before the Parliamentary Committee that suggested that we in fact could achieve a 20 percent reduction in CO/2 by the year 2005 if we do this strategy or that particular strategy. I don't think it can be done by any single strategy, but I think if we

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start from the basics that takes conservation of energy 1
as the first step, if everybody can get in step and 2
think with conservation -- I know my friend that's 3
driving the diesel truck is probably driving the most 4
efficient truck ge can get. He's probably got to to 5
make it pay. 6

I know the farmers in my district 7
are at no profit margin right now. I know that. 8
They're going to have to start looking at their 9
overheads, and maybe it will take a bit of a downturn in 10
our economy to have us -- make us take a real strong 11
look at our profit margins, because that profit margin 12
has been a continual push for more consumption. 13
Overheads, maximizing production has been the way we've 14
been -- we've been on a treadmill a long time. We 15
somehow got caught up in this I guess growth -- this 16
notion that, without continual growth, that we're dead. 17
I believe it's a falsehood, and I believe that we have 18
taught ourselves to believe that, and I don't think it's 19
good for our country. 20

If we could get ourselves 21
convinced that a steady state would be much better, not 22
only in terms of our lifestyles but our future as far as 23
pollution, whether it's air, land and water -- my 24
agrologist friends tell me as a farmer that we've lost 25
about half the productivity of our soils in one human 26

lifetime. That's really scary. It's really scary. And 1
the young farmers out there that say, well, they have 2
to -- to make ends meet, they have to maximize 3
production, and pretty near every industry has been 4
doing that, and I think that's where we've gone astray. 5
We have simply set our production goals to a point where 6
the cost of pollution and overhead is going to kill us, 7
and not only kill our economy but kill our quality of 8
life. 9

And I think maybe my main reason 10
for coming is because, having read most of this good 11
stuff, I was interested to see whether the strategy that 12
would maybe emerge from this exercise, as one of a 13
number of exercises that's going on in Alberta, would 14
somehow fit into the provincial conservation strategy 15
that some of us have been working with for the last five 16
years. 17

And we just in October this year 18
released the draft Alberta Conservation Strategy 19
proposal, and while it's only a draft outline, it 20
nevertheless takes into consideration that every sector 21
in our province, as in the country, will have to do 22
something in terms of dealing with the issues of 23
pollution, whether it's air or under water. There's no 24
question in my mind we'll have to do that. 25

It's only three or four weeks ago 26

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in this same hotel there was a panel here conducting a
similar exercise, and it was in regard to the draft
environment bill that's now in draft form. I was here,
and they were disappointed with the turnout, and I'm
sure that you're feeling a little disappointed with the
turnout you had across the province. I think the --
we've been deluged, Mr. Chairman, with this good stuff.
In the last month, we've had a draft environment bill
asking for public gut reaction. Two weeks ago, we had
the Wetlands Policy Paper asking for public reaction.
Now we have the Clean Air Strategy and -- looking for
public reaction. Of all of those things, I think this
one is probably the hardest for the individual to
comprehend.

Most of us understand what
happens to water when it's polluted because it's
something we use every day. Not that we don't use air,
but it's more of an insidious thing to deal with. Those
of us that know a little bit about the land know what
happened to our wetlands, we know why there's got to be
a change in our policy in terms of how we look at
wetlands.

So I guess what I'm trying to say
is that, if you're disappointed, I say don't give up. I
hope that what you've got going here will somehow fit
into the total strategy in the province of Alberta,

because I think it's super-important that we do that. 1
And we can achieve it. My friend feels that we will 2
probably talk about it -- I'm sure we will talk about it 3
for the next 30 years. I've been talking about it twice 4
as long as you have and I'm still here, but I am seeing 5
people responding like never before. Those kids here 6
tonight are good indication that people are responding. 7

The young ladies that made the 8
presentation specifically with the automobile, it was a 9
good one. It was a good one. We know darn well that we 10
can have more efficient automobiles and trucks and 11
tractors. We know darn well we can. They told us 30 12
years, Vern, that we wouldn't be able to get much over 13
20 miles per gallon. Now we get 40, and there's no 14
question we'll get 60 and eliminate most of the noxious 15
substances that go into the atmosphere. Right here in 16
Alberta, our own utility, TransAlta, are on the road to, 17
I think, a major -- a major decrease in their 18
atmospheric emissions. I see nothing but positive stuff 19
coming out of this major concern about the environment 20
that's sweeping the country, and, obviously, we'll all 21
need to turn a little green. 22

I think how we approach it may be 23
the crux of your question. Obviously, if we start from 24
the basis that conservation has got to be the number 1 25
approach, individual action. Secondly, obviously -- and 26

the other speakers have mentioned it -- we need to 1
establish a climate for a standard that's as close to if 2
not zero pollution in this province, whether it's our 3
water or our air, and technology has already told us 4
it's there. It's obvious we're a little slow at 5
grasping onto it because we haven't had to, we haven't 6
had to, and that's the only reason we're not doing it. 7

The fact is there are clean 8
fuels, we'll be using them, and it won't be too long. 9
The fact that we have scads of coal in this province 10
don't necessarily mean we're going to burn it. I think 11
oil is a little more difficult to deal with, simply 12
because there's been big bucks in burning it, there's 13
big incentives to produce it. I'm not so sure that -- 14
that the scarcity or the high prices of oil is going to 15
slow us down a whole bunch, but I think that we can 16
impose standards on ourselves, we can encourage our 17
government to look at standards that are achievable. 18

I believe that we talked about 19
this when the draft Environment Act was being discussed, 20
that if we were to adopt a no pollution at source for 21
our rivers in this province, we would all be better off 22
and we wouldn't have to talk about it 30 years from now 23
that the river is still polluted. You can't eat the 24
fish in this river? Most every river in Alberta is 25
polluted and we're living at the head of the creek, for 26

crying out loud. We brag about our standards being the 1
best in Canada. Well, they should be. They should be. 2
Because every time that we pollute the river, we 3
mortgage the cost of development downstream. It's not 4
fair. We wouldn't like it if they did it to us. So I 5
think maybe when it comes to clean air, it can be 6
achieved. 7

I had the occasion to ask the 8
Chairman of TransAlta the other day what he would do if 9
Chief John Snow and the chief from the Peigan tribe, who 10
probably -- Stoneys and the Peigans probably have two of 11
the best wind farm locations in Alberta, what he would 12
do if those people came to him and say, we'll supply the 13
land and a bit of the capital investment here, how about 14
tying us into the Alberta power grid? 15

And I was pleased with his 16
response. He said, I think we would have to sit down 17
and talk. That's what we've got to do. We can do it. 18
The fact is we can probably produce all the power we 19
need without any pollution in this province. It's just 20
a matter of the willingness to do it. We've taken, I 21
guess, cheap fuel, cheap power, cheap food for granted, 22
and it has led us down the wrong path. 23

I think maybe I should stop, Mr. 24
Chairman. It's a big topic, but -- I wish you well, and 25
don't let the small crowds deter you, because I hope 26

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that one day we'll be able to at least say that we had 1
enough brains and guts to coordinate and do the things 2
that we know that's got to be done. And I think we can 3
do it. 4

MODERATOR MILLARD: Thanks, Elmer. Are there any 5
other -- does anyone else want to make any comments? 6

We were wondering about asking 7
Doug Brough from the Energy Audit of Energy and Natural 8
Resources to make a brief presentation on the kind of 9
work that he does in going around and auditing 10
commercial establishments and schools and hospitals and 11
so on. Would there be an interest in that? 12

ELMER KURE: That sounds good to me. 13

MODERATOR MILLARD: Doug, are you around? Good. 14
Would you mind, please? 15

DOUG BROUGH: Well, good evening, ladies and 16
gentlemen. My name is Doug Brough, and I'm with the 17
Alberta Government's Energy Efficiency Branch. I'm not 18
here really to make a submission. I'm just hear to tell 19
you about a couple of programs that we have within our 20
branch and what we are doing today about energy 21
conservation and how it affects the environment. 22

What you see in front of you is 23
our energy audit service. Upon request, a team of 24
engineers and technologists visits these buildings and 25
plants throughout the province to conduct these 26

computerized audits on them. This service is a 1
no-charge service to the public to help them with their 2
energy bills. 3

We have a number of instruments 4
aboard, and when we arrive on site, we tour the 5
facility, we take measurements on ventilation, we 6
measure the boilers to determine how efficiently that 7
they are burning. We also have power factor, electrical 8
measuring devices to measure the draw of electrical 9
motors, electrical equipment, et cetera. We pay 10
attention to lighting. We take light level measurements 11
and a number of other measurements. 12

What I want to talk to you is 13
just a little bit about the program. To date -- this 14
program started back in 1981, so it's almost ten years 15
old -- we have completed about 1600 energy audits in the 16
ten years. This is just a pie representation of where 17
the areas and what percentage of the audits were done 18
throughout the province. 19

Energy usage: The Energy Bus 20
identified a total usage of \$180 million worth of 21
energy. After the audit, the potential to reduce is 22
down to 125 million. In other words, the Energy Bus had 23
a potential savings of \$29 million at those 1600 24
facilities. 25

In terms of kilowatt hours, 10.7 26

billion kilowatt hours was identified after the audit, 1
they have a potential to reduce down to 8.9 billion, 2
which is a savings of 1.8 billion kilowatt hours or 3
about 17 percent of the energy could be saved. 4

What areas do we take a look at? 5
We find the savings, the majority of them, being in the 6
ventilation and lighting areas. We look at heat 7
recovery, power factor, building skin. Building skin is 8
the heat loss through the walls, roof, doors and 9
windows. In this particular case, we look at reduced 10
temperatures, we look at temperature setback, upgrading 11
weather stripping, et cetera. We look at load 12
scheduling, combustion efficiency improvement and fuel 13
conversions. 14

I guess this -- it comes down to 15
now is the bottom line. The Alberta Energy Bus has 16
identified 1.4 million kilowatt hours worth of natural 17
gas savings and electricity at 312 million kilowatt 18
hours. In terms of CO/2 savings to the environment, we 19
have identified 307,000 tons worth of CO/2 due to 20
electricity savings and 263,000 tons worth of natural 21
gas savings. 22

There is a couple of other 23
programs that we have, and I just want to quickly 24
mention them. There's three others, actually. One is 25
the residential program. Those are those red and white 26

booklets at the side. They tell you how to make your 1
house more energy-efficient. We also have a guy wired 2
to a telephone in the office; if you have any questions 3
regarding your own house, you can phone in and he'll 4
answer them for you. 5

We have an educational schools 6
program. Public shows are taken out to the schools and 7
given to grade -- elementary children on the importance 8
of energy efficiency and the environment. We have 9
senior high school kids. We have physics kids, and we 10
have a new game called Strategeum (phonetic). It 11
involves a game which lets you control the world for as 12
long as you can based on energy and the environment. It 13
really teaches high school students and teachers the 14
implications of both. 15

And, lastly, we have a 16
transportation program. That Energy Bus that you just 17
saw earlier is also part of that service. We do energy 18
audits on fleets. If a large company has a number of 19
fleets and they want an energy audit done, we'll go out 20
there, we'll take a look at their routing plans, try and 21
re-route to make more efficient use of trucks, perhaps 22
drop a few out to save on fuel. 23

We have driver training for 24
energy conservation awareness programs, and we also look 25
at maintenance on vehicles. We're capable of testing 26

them from an emission standpoint to also let you know
the savings. To date, the energy transportation audits
are saving on average about 30, 35 percent, and that's a
combination of correct vehicle selection, vehicle
maintenance, as well as the routing.

Just one last point that I want
to point out is this simple fluorescent bulb here which
you can even put in your own homes is 13 watts and it
can replace a 60 watt bulb and give you the same amount
of light. In its lifetime, which is 10,000 hours, it
will reduce the CO₂ emissions by half a ton, or, in
other words, 1,000 pounds, so you yourselves just by
replacing one simple light in your house can help reduce
emissions.

If you have any questions
regarding these programs or how they are available,
don't hesitate to see me after. They -- each one of
them is no charge and is available to you to make you
aware of how to save money, help the environment and
promote energy conservation. Thanks.

MODERATOR MILLARD: Doug, thanks very much, but I've
heard you talk about specific cases where you've gone
out. Could you perhaps illustrate your process by some
specific examples?

DOUG BROUGH: Okay, a specific example: We
went to a high school and we took -- we measured the

exhaust fans, amount of air flowing through that school. 1
We found that school was over-ventilating by more than 2
four times the required rate, and in doing so, by 3
changing the pulley sizes, reducing the amount of air 4
flow but still maintaining adequate requirements and 5
healthy requirements, they saved over \$60,000 per year 6
in that instance, to give you one example. 7

Another interesting one was at a 8
distillery company in Calgary. What they found, they 9
were using old boiler systems and they were out of 10
Corvettes, out of the old war ships, and they were using 11
that to -- for their distillation process. They had 12
fixed combustion air to them, so as they were loaded 13
between half, three-quarters, up to full, their 14
efficiency ranges were different. At full capacity, 15
they were around 80, 83 percent efficient, and they 16
dropped down to 50 to 65 percent. 17

What we suggested there is that 18
they install a control which automatically regulated the 19
combustion air into the boiler for peak efficiency. As 20
a result, I believe they spent \$22,000 putting in the 21
control and it saved them well over \$100,000 a year by 22
putting that in. It ended up being a two- to 23
three-month payback for them. That was an excellent 24
energy conservation opportunity. 25

MODERATOR MILLARD: Are there any questions of Doug? 26

ELMER KURE: I've got to ask Doug a question. 1
It's about a year ago since I heard about the small 2
fluorescent light that fits in the ordinary light 3
socket, and at the time, they were selling them at about 4
24 bucks a piece, but they aren't available. So -- 5
DOUG BROUGH: They are now. You can buy them 6
now. This one here I have here has got -- it's 7
disposable. The ballast is built right into the lamp. 8
There are other types that you can just pull out the 9
fluorescent tube, pop them in. I think the tube runs 10
about \$7.00. But they are available, there are some 11
stores out there which do sell them, and most lighting 12
places should be able to put you in touch of where to 13
buy them. 14
ELMER KURE: Okay, I got a listing of the 15
available outlets in Red Deer about three months ago, 16
has the light, is supposed to carry them, but they 17
didn't have them. Since then, they've gone out of 18
business. Now, is there a place in Red Deer where 19
people can buy this thing? Because I think they would 20
sell like hot cakes. 21
DOUG BROUGH: I'm not sure in Red Deer. I know 22
in Edmonton and Calgary you can buy them. I imagine if 23
you phone them, there would be some way that they could 24
get them up here or put you in touch with a lighting guy 25
that could ship them up here that you could pick them 26

up, but they are becoming more and more available now. 1
I believe that this still is about \$20.00, but it does 2
last 10,000 hours as compared to a thousand hours for 3
the typical incandescent bulb. So you get nine to ten 4
times the life on them. 5

ELMER KURE: I have one myself now, so -- but 6
I think if someone had a truckload, they could sell 7
them, you know. 8

DOUG BROUGH: Yeah, it would probably be a good 9
business opportunity here. Even using -- if you have 10
four-foot fluorescent tubes, changing them to 34-watt 11
misers on a burn-out basis can reduce energy costs by 12
percent. 13

With our residential program, 14
simple things like keeping the back of your refrigerator 15
coils clean can cut the cost down by 5 percent, which in 16
turn will save about 15 percent on CO/2 emissions. 17

So there's little things that we 18
can do now, and I think that the Alberta Government has 19
programs which are out there, and we are doing something 20
right now, we're educating the kids, we're promoting 21
better use out in the industry, and we're showing them 22
how much they can save. 23

And we have a follow-up program 24
on our energy audit vehicles that, a year and a half 25
down the road, we'll give you a call and we'll say, hey, 26

how's it going, what have you been doing? And we're 1
getting about a 65 percent response rate that they are 2
doing things out there on the audits that we are doing. 3

ELMER KURE: Can you tell us how many of the 4
government buildings have had an audit done? 5

DOUG BROUGH: Government buildings, okay. 6

ELMER KURE: I don't want to put you on the 7
spot, but it seems to me that -- 8

DOUG BROUGH: No, no. 9

ELMER KURE: -- we have been doing this thing 10
for nine years. 11

MODERATOR MILLARD: As a matter of fact, Elmer, I 12
just decided after listening to Doug today that I'm 13
going to arrange for the W.C.B. offices in Edmonton to 14
be audited. I'm not sure if they have been done, but 15
assuming they haven't, they will be. 16

DOUG BROUGH: In terms of government, 5 percent 17
of the total we have audited. But we should also look 18
at schools, we should also look at recreation 19
facilities, because they are somewhat government funded 20
as well. 21

 The government here mainly refers 22
to R.C.M.P. stations, et cetera. The agriculture at 1 23
percent, we have done a couple of agriculture research 24
farms, again being government. 25

 But our main focus is to try and 26

help the public, help you people out. That's why most 1
of our audits are in the commercial section. 2
Residential, we do not do audits on houses. That refers 3
to apartment buildings. And I guess you could also 4
consider municipal. Municipal are a lot of Town, City 5
buildings across Alberta. We have done a number of 6
audits for the City of Red Deer. We have done all their 7
arenas, their swimming pools, their community centres, 8
et cetera, and we have done quite a bit across the 9
province to help small towns out. 10

So we are looking after -- or 11
trying to do the government as well as the private 12
sector, but I guess you can appreciate we only have two 13
vehicles which do all this, and that's why our backlog 14
is about four to six months. Hopefully, in the future, 15
we can expand this program and cover more area. 16

JASON EDWORTHY: In commercial establishments, 17
would you look at a farm, like a dairy operation? 18


DOUG BROUGH: Yes, we would. We have done a 19
couple of big dairy outfits. We have done chicken 20
barns. We've even done pork and pig barns. We'll touch 21
any building that you have out there, except, at this 22
present point in time, a private house. 23

MODERATOR MILLARD: Thanks very much, Doug. 24
Are there any other submissions 25
or comments? 26

Well, perhaps I can say on behalf 1
of the Clean Air Strategy group that we really do 2
appreciate you coming out, and we welcome your comments 3
and suggestions, and if anyone wishes to file a written 4
submission, you can do so by sending it to the -- I 5
think there's an address; is that correct, Bob? 6
BOB MITCHELL: Right, there's an address on the 7
blue folders, the overview fact sheet that people picked 8
up on the way in. 9
MODERATOR MILLARD: Thanks again. 10
(Meeting ended at 8:50 p.m., Thursday, December 6th, 1990) 11
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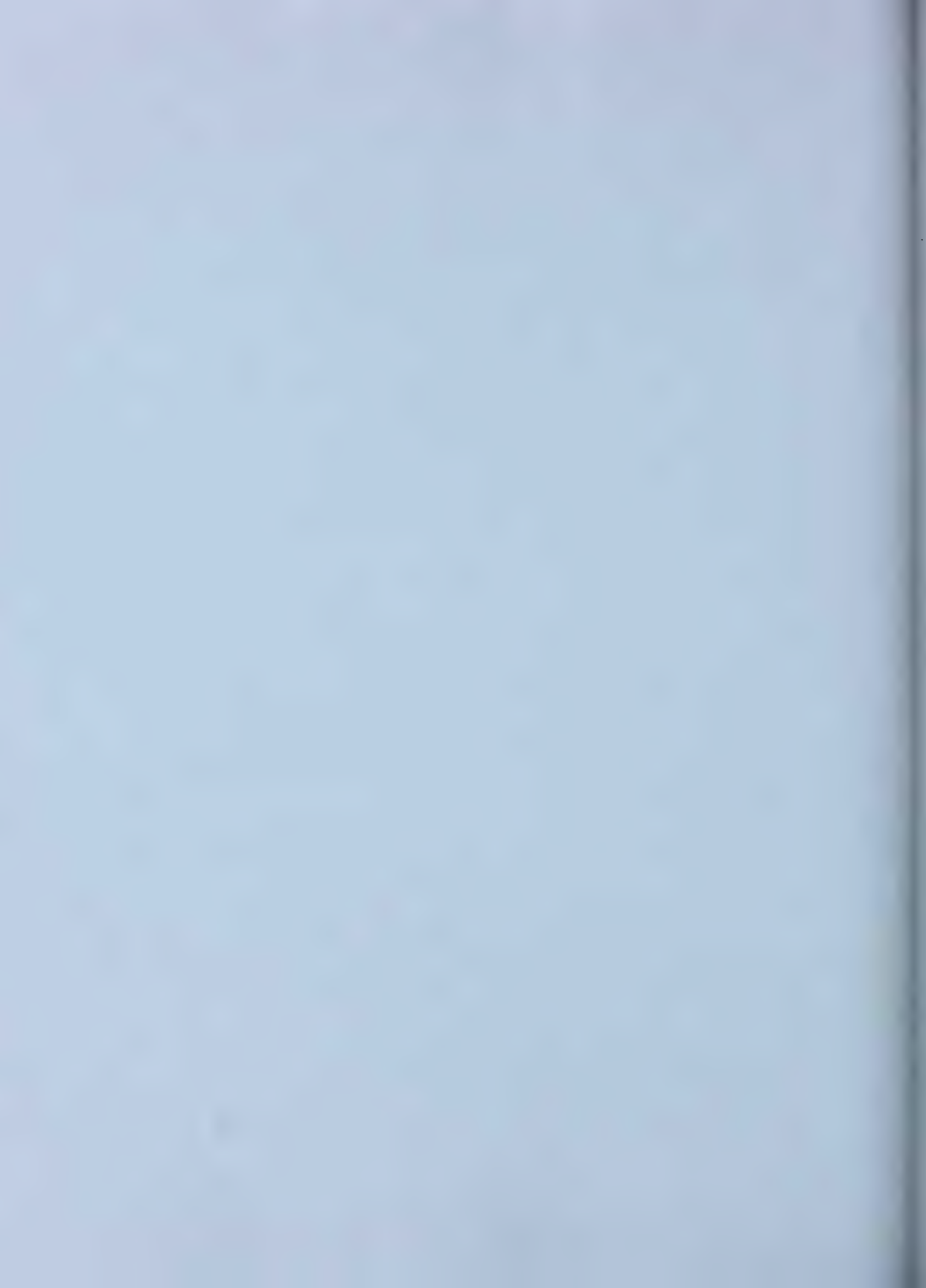
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Transcript of Proceedings

(Meeting commenced at 7:10 p.m., Thursday, Dec. 13th, 1990)

MODERATOR MILLARD: Good evening, ladies and gentlemen. I'm not sure if the microphone is working, so I'll just speak a little loudly.

Let me welcome you to this meeting of the Alberta Clean Air Strategy. We have been meeting in various parts of Alberta. This is the last session. We've met in eight different communities. Actually, we've been in Pincher Creek about a week ago, but you people had so much snow that we had to leave without having the program.

But I would like to start with making some introductory remarks about what the Clean Air Strategy is about. Then we have a group of people who want to make -- a small group that want to make submissions. And, after that, we may have some discussion. We'll see how the evening goes.

First of all, let me comment on the Clean Air Strategy. What is the strategy? Well, it really starts with the fact that our planet is becoming increasingly stressed by emissions being made by our occupation of the planet.

The -- you're going to have to forgive me. My eyesight is so poor I have trouble reading this.

There is a growing consensus on

1 behalf of scientists that the emissions are causing
2 serious problems and that corrective action needs to be
3 taken.

4 The Clean Air Strategy is
5 designed to encourage public discussion of these issues,
6 and the intent is that the Clean Air Strategy will
7 identify the most important issues or problems, that it
8 will develop practical approaches for reducing
9 emissions, and that it will recommend policies and
10 programs to the Government that will result in the
11 reduction of emissions.

12 The strategy has four basic
13 phases: The first step occurred last September at a
14 workshop where various stakeholders attended to review
15 the main issues that seem to be apparent in terms of
16 clean air problems. There were representatives from
17 industry, environmental groups, public health, research
18 and government. They identified the issues, and they
19 are in the process of considering how they can be best
20 assessed. Thank you. That certainly helps.

21 The second stage of the process
22 are the regional sessions, one of which is this
23 evening's session, and it's designed to get the views of
24 people in the area that the meeting is held in with
25 respect to these issues. The public is invited to ask
26 questions, to present views and to recommend options for
27 action on the clean air issues.

1 The third stage will be a summary
2 workshop which will be convened in the spring of the new
3 year, and it will include representatives of the various
4 stakeholder groups, and the workshop will review and
5 consider the information that has come out of the
6 regional meetings, and it will develop a proposed
7 strategy, which will then be forwarded, in the fourth
8 stage, in the form of a report to the Government.

9 Now, let's look a little bit at
10 some of the background to this whole issue. What are
11 the major problems? As I said before, continuing
12 research by scientists has indicated that our planet is
13 under serious strain. An example of the kind of
14 consensus that is building took place in November of
15 this year when at a Geneva conference on global warming
16 700 scientists recommended strongly that action be taken
17 to reduce emissions to the atmosphere.

18 The kinds of issues that were
19 predominant in these various discussions on an
20 international level are, first of all, the so-called
21 greenhouse effect or what is also called global warming.
22 It's caused by carbon dioxide and other emissions to the
23 atmosphere. The gases are trapped -- or trap energy
24 radiated from the earth, and fossil fuels and water are
25 the major sources of greenhouse gases. Emissions occur
26 in both production and in the use of fossil fuels.

27 This is a schematic sketch

1 showing how the system operates. You can see the sun,
2 and this corner depicts the earth, and heat is
3 radiated -- energy is radiated from the earth, and as
4 the gases increase in the atmosphere, it means that more
5 of that energy is returned to the earth, thereby causing
6 the increase in temperature. Fossil fuels, oil, gas and
7 water are major sources of greenhouse gases, and it's
8 important to recognize that emissions occur, as I said
9 before, in both the production and use stages.

10 The second problem area is acid
11 deposition or so-called acid rain. This has received a
12 good deal of publicity over the last decade or so.
13 We've heard about acid rain in Eastern Canada and
14 Eastern United States. It's caused by sulphur oxides
15 and nitrogen oxides in the atmosphere. Sulphur oxides
16 occur from processing fossil fuels, sour gas and coal.
17 Nitrogen oxides occur from industrial and consumer
18 operations, and in particular the operation of motor
19 vehicles.

20 A third general problem is smog.
21 Again, this has received a good deal of publicity over
22 the last couple of decades, but particularly in other
23 areas. We've all heard about California, the smog
24 problems in L.A. and so on. Well, it occurs beyond
25 that. It occurs in Eastern Canada, and, indeed, to some
26 degree, it occurs in Alberta in the two major centres,
27 Calgary and Edmonton.

1 Well, what is being done about
2 these problems? Certainly, research has been going on
3 for some time, and as a result of that research,
4 national and international studies and agreements have
5 been reached. For example, in 1985, there was a U.N.
6 agreement on the reduction of sulphur oxides. In 1988,
7 there was an agreement on nitrogen dioxides. And carbon
8 dioxide has just recently been agreed to at an
9 international level, and the target, as I'm sure you're
10 aware, is that the CO/2 emissions would be stabilized at
11 the 1990 level by the year 2000. And, of course,
12 research is an ongoing matter in this area.

13 We need to fit Alberta into the
14 overall focus of these questions. And the first thing
15 we need to recognize is that Alberta is a major producer
16 of fossil fuels, which, in turn, of course, is a major
17 contributor to the emissions. In terms of gas, Alberta
18 accounts for 83 percent of Canadian production. In the
19 case of oil, it's 80 percent. And in coal, it's about
20 44 percent.

21 And I suppose, not surprisingly,
22 as a result of that, Alberta's share of the emissions is
23 relatively high. In terms of sulphur dioxide, it's 15
24 percent of total Canadian emissions. For nitrogen
25 dioxide and carbon dioxide, it's 23 and 22 percent
26 respectively. Almost a quarter of Canada's emissions of
27 those two gases occur in Alberta. And that means that

1 Alberta has the highest per capita rate of any of the
2 provinces in Canada, because we really account for only
3 about 10 percent of the population.

4 Now, an important factor, though,
5 is that 75 percent of Alberta's oil and gas is sold
6 outside the province. That means that the emissions
7 that take place in the process of producing that oil and
8 gas really are being carried out on behalf of other
9 consuming areas. So one has to bear that in mind in
10 terms of attributing these emissions to Alberta; we're
11 contributing, but we're contributing on behalf of other
12 consumers.

13 Another interesting statistic is
14 that Canada's share of the world's CO/2 emissions is 2
15 percent. That means that Alberta's share of world
16 emissions, CO/2 emissions, is about a half of 1 percent,
17 not large, but when you can relate it on a total basis,
18 it's a substantial amount.

19 We also have to recognize that
20 fossil fuels are very important to the economy of the
21 province. In 1989, the total value of production was
22 almost \$16 billion. 2.4 billion was paid in royalties
23 to the Government, and that represented almost 25
24 percent of the total Government revenues in 1989. The
25 fossil fuel industries account for about 250,000 direct
26 and indirect jobs.

27 I think it's important that

1 we recognize that we're all involved in this process.
2 It's not the kind of situation where we can point the
3 finger at other people and remain free ourselves. For
4 example, CO/2 and NOx emissions are roughly split
5 one-third by the energy industry in producing our energy
6 products that we all use, another third is attributable
7 to other industries in the province, and then the
8 remaining one-third comes from the public, from you and
9 I in the various activities that we engage in, whether
10 it's driving our cars or heating our homes or whatever.

11 An interesting question is what
12 do we mean by "clean air"? You can define "clean air"
13 so that it's air that doesn't contain contaminants to
14 the extent that it would cause adverse effects on human
15 health, vegetation and materials. But this may not
16 really be a sufficient definition, because it really
17 doesn't allow for the long-term effects of emissions to
18 the atmosphere.

19 If you assume, as most of the
20 people have that we have met with in these regional
21 meetings, that Alberta has clean air, I think we should
22 qualify that by saying that we have clean air today but
23 the air contains emissions that will have long-term
24 effects on the planet, so in deciding what is clean air,
25 one has to look over the long term rather than just at
26 the present.

27 Now, how can we reduce emissions?

1 There are really four basic ways:

2 One is we could produce less
3 energy. If we stopped producing gas or we stopped
4 producing oil from the oil sands, we would certainly
5 reduce the number of emissions in Alberta significantly.
6 Of course, we would also have other impacts, primarily
7 economic.

8 We can use less energy, we can
9 stop driving our cars as much, or we can heat our homes
10 to a lesser degree.

11 We can also use energy more
12 efficiently. We can, for example, insulate our homes so
13 that we don't require as much energy to provide the same
14 level of temperature in the home.

15 Or we can shift to non-polluting
16 energy sources. And I guess, having regard for the wind
17 factor in this part of the country, wind energy is
18 something that comes to mind immediately in terms of
19 that fourth alternative.

20 How can we as individuals reduce
21 emissions? And that, of course, is the focus of these
22 regional meetings. We want to get your suggestions,
23 ideas and advice with respect to this.

24 Clearly, education is a major
25 factor, and that leads to the question of how can that
26 be achieved? I might say in terms of education that the
27 meetings that we've been holding have not been very well

1 attended, limited interest in the subject; at least,
2 that's the way it would appear. And probably education
3 is one of the factors that's missing in terms of -- and
4 the cause for that lack of interest in the subject.

5 And I guess the burning question,
6 in a sense -- pardon the pun -- is how do we become
7 convinced that we must change our lifestyles? Because
8 that's a factor that's a major ingredient in terms of
9 reducing emissions. The impacts from the emissions are
10 so remote, either on a geographical basis or on a time
11 basis.

12 What policies and programs are
13 required for an effective clean air strategy? Well,
14 again, we want your suggestions. Some possible
15 developments are the establishment of new standards;
16 another possibility is limiting total emissions in a
17 particular area; a third would be to establish
18 incentives to develop new technology; we could also
19 change the current financial incentives that tend to
20 increase the use of energy; and, of course, we can
21 expand research. This is just a possible list. There
22 are, I'm sure, many other alternatives that are
23 available.

24 Well, that, ladies and gentlemen,
25 provides you with a very brief and general view of the
26 background to this subject matter. The Clean Air
27 Strategy group have prepared some fact sheets, and if

1 you haven't seen them, I would certainly commend them to
2 your reading. I know I read them a few weeks ago, and I
3 found them extremely interesting, and I think you would
4 all find them interesting.

5 Now, what I plan to do now is to
6 invite the people who have indicated that they want to
7 make submissions. If there are others that would like
8 to make submissions, even though they haven't registered
9 in advance, we would be pleased to receive them, and
10 then we'll go from there.

11 The first submission was from the
12 W.R. Meyer High School in Taber. Are they present?

13 SHAWN BOYLE: Yes.

14 MODERATOR MILLARD: Good, thank you.

15 SHIRLEY: We are students from the Chem 30
16 class at W.R. Meyers High School. I'm Shirley, and I
17 have four other people with me, Vicky, Dawn, Darcia and
18 Ann.

19 This is a famous quote by
20 G. Lowes Dickinson. He wrote it in 1898. It is nearly
21 a hundred years old, and it is still true to this day.

22 "Dissatisfaction with the world in which we
23 live and determination to realize one that
24 shall be better and the prevailing
25 characteristics of the modern spirit ..."

26 The world around us has a lot of
27 dissatisfaction, but the one that should be most

1 prevalent to us is clean air. This is because, without
2 clean air, our health would lessen and we wouldn't be
3 able to breathe, and life would just not be the same
4 around us.

5 There are many different types of
6 air pollution. We should become aware of all of them.
7 One of the major causes, you may not know, is carbon
8 dioxide. This is produced by any substance containing
9 carbon, such as coal, natural gas, fossil fuels in
10 general.

11 All these graphs were obtained
12 through the Task Force of Energy and the Environment
13 1990. This bottom graph here is about in Alberta what
14 produces -- produce carbon dioxide. We have first about
15 one-third is produced by electric generators, such as
16 coal. And then we have energy industries, such as in
17 Taber we have the sugar factory. They use a lot of
18 fossil fuels, such as natural gas. They use this to dry
19 up the sugar crystals. Then there's the other
20 industries, the transportation, residential and
21 commercial businesses and things like that. This makes
22 up the last third.

23 Cars do emit some, but they're
24 not as bad as the other industries. In order for us to
25 cut down on the amount of carbon dioxide emissions, we
26 have to look at the energy industries and the electric
27 generators. They produce a large amount.

Then here on the top graph, we have how much carbon dioxide is produced by each province. Ontario is the leading carbon dioxide producer, with Alberta next. Alberta's population is fourth, but per capita we produce the most carbon dioxide emissions.

By the year 2005, they predict that Ontario and Alberta and all of them will still be increasing in carbon dioxide. We should actually stop this, because the air around us is going to start depleting because of the ozone layer and global warming.

Carbon dioxide is the most common man-made greenhouse gas. It's a significant contributor to global warming. Alberta doesn't have to worry right now about acid rain, because we have alkaline dust, and this neutralizes the acid rain so we don't have to worry about soil erosion at the moment with acid rain. But if we continue to burn this fossil fuel and emitting more sulphur oxides and nitrogen oxides, the situation will worsen and we will have to worry about this.

This top graph here is how much each province emits of sulphur dioxides. Quebec and Ontario are the leading ones, and Alberta is third, but by the year 2000, Quebec and Ontario have decreased in their emissions, while Alberta has increased. Quebec and Ontario have made legislations to decrease it by the year 2000. Well, Alberta hasn't yet. I think we

1 should.

2 On this bottom graph, we have the
3 amount of sulphur dioxide emitted in just Alberta and
4 the different industries that produce it, such again as
5 electric generators, gas plants, oil sands, oil and gas
6 fields and other. In order for us to reduce the amount,
7 we have to look at all of them. They have -- they
8 produce a large amount.

9 This graph is on nitrogen oxides,
10 and here we have Quebec -- or Ontario leading again,
11 then Alberta, which Alberta is still leading in
12 emissions per capita. Quebec and Ontario decreased
13 somewhat by the year 2000, but Alberta still hasn't
14 moved. They haven't decreased any.

15 This bottom graph shows how much
16 Alberta -- which industries in Alberta produce nitrogen
17 oxides. We have mainly the same ones, electric
18 generators, energy industries, other industries,
19 transportation, residential and commercial businesses
20 again. Transportation produces more than before.

21 We have to stop and think. Don't
22 we have to save the air? We're going to be breathing
23 this in order to live.

24 VICKY: Methane, which is a greenhouse
25 gas, which we can call it, occurs naturally, and the
26 natural processes contribute half of the methane in the
27 atmosphere, and the rest of the half is shared from

1 agriculture and the production of fossil fuels.

2 The burning of fossil fuels is
3 man-made and is a major source of the nitrogen oxides,
4 as well as the use of volatile organic compounds, or
5 VOCs, as we can call them. The ground level ozone is
6 formed when nitrogen oxides or VOCs react in the
7 presence of sunlight. Another one in our ground ozone
8 is chlorofluorocarbons, or, as we call them, CFCs, and
9 they are man-made chemicals which exist as liquid or
10 gas, and they are not natural, always manufactured, and
11 those such things are in our anti-perspirants or hair
12 sprays. The chlorofluorocarbons contribute to the
13 greenhouse effect, which they thin the ozone layer,
14 which is not good, as you know.

15 And since Alberta is a leader in
16 emissions per capita, which is higher than Quebec and
17 Ontario, which they are bigger than us, we should start
18 to enact legislation perhaps even more stringent than
19 the larger eastern provinces in order to reduce
20 emissions and pollution, thereby providing Alberta with
21 cleaner air.

22 And as we were putting together
23 this presentation, we noticed that, since we had so many
24 different opinions in our group, we decided to do -- as
25 students to get together separate from the big class
26 that we have to decide on what we could do to make
27 Alberta have cleaner air. We can relate our project to

1 the environment, which needs to be done. What needs to
2 be done is to get a leader to decide on what to do
3 though still taking into consideration each and every
4 one of our opinions and points of view, for if no one
5 takes charge, nothing will ever get accomplished.

6 DAWN:

It seems obvious that we have to
7 do something now. Our first priority should be to focus
8 on what we can do immediately, starting with short-term
9 goals with a long-term plan in mind. Each person has to
10 do their own part.

11 We can start with recycling.

12 This may not seem connected with clean air, but it is.
13 If we don't recycle, our garbage ends up in land fills,
14 which emit harmful gases into the atmosphere. We can
15 separate our garbage into organic and inorganic piles.
16 Right now in Southern Alberta, the only things we're
17 able to recycle are bottles, aluminum cans and paint
18 cans. This is not nearly enough. We need to pressure
19 leaders at all levels to provide us with additional
20 centres for recycling our inorganic garbage. We can
21 compost our organic trash and use it as a natural
22 fertilizer.

23 Another thing we can do to limit
24 pollution is to curb our driving time. We should limit
25 the amount we cruise, walk more and learn about
26 available public transportation. All of us should learn
27 to car pool as much as possible.

1 The Government has to do its part
2 too. It's our opinion that the Government should
3 subsidize programs by individuals and businesses that
4 would lead to a cleaner environment. This money can be
5 drawn from Government programs which are not as urgent
6 right now, such as military marching bands and the
7 acquisition of artistic pieces. The most important
8 thing they can do is to make and enforce laws to provide
9 us all with cleaner air.

10 The Government has to set a time
11 line for change to occur. The system of gradual change
12 has worked well in the past, as with the transfer from
13 leaded to unleaded gasoline. This change was gradual,
14 and we had no problem meeting the deadline.

15 DARCIA: Using the aforesaid method, as
16 you said, we went gradually from leaded gas to unleaded
17 gas, we can gradually go into a new and safer fuel for
18 our cars and heating homes and the electricity. There
19 are many fuels which we can take into consideration, but
20 one that most people don't even know about or are aware
21 of or don't think is a possibility is hydrogen.
22 Hydrogen is a very possible fuel.

23 There's a quote by David Scott, a
24 leading hydrogen proponent at the University of Victoria
25 in B.C. He says that:

26 "There is zero uncertainty that a hydrogen
27 economy will evolve within the next several

1 decades."

2 There are two main reasons why
3 hydrogen is such a good fuel to use. And the first is
4 because there's endless supplies of it. You make
5 hydrogen from -- when you electrolyze water and it makes
6 it into the hydrogen and oxygen ions, and so since
7 there's always water around, then we'll always have
8 hydrogen.

9 Another reason that hydrogen is a
10 good gas is that it's not harmful to the environment
11 but, when you burn hydrogen, it just goes back into
12 water.

13 Another reason why hydrogen is
14 good is because it's a flexible medium for storage and
15 distribution of energy. It's easily converted into
16 electricity by fuel cells, and it can travel through
17 pipelines to the homes to heat them or to provide
18 electricity for them. We can also use it as a fuel for
19 powering cars.

20 The production of electricity is
21 not that complicated. These are photovoltaic cells, and
22 they're similar to the cells that we now have in our
23 solar-powered calculators except there's a lot more of
24 them. They take the sun's energy and transform it into
25 electricity. Then the electricity is used to
26 electrolyze the water into hydrogen and oxygen. The
27 hydrogen and oxygen is then either stored in a big

1 storage container or transferred into pipelines into
2 fuel cells which transform it into electricity for
3 homes, or generators which transform it into
4 electricity, boilers which transform it into heat, or
5 engines which transform it into power for the cars to
6 move.

7 When hydrogen is available at
8 lower costs, I think the first largest market would be
9 transportation. Even converting a small amount of the
10 cars to hydrogen power would reduce the smog in polluted
11 areas by a substantial amount.

12 Some might know that hydrogen
13 cars have been produced in Germany. They're trying to
14 figure out a way that hydrogen could be used. The two
15 cars that they have already had and have had success in
16 is BMW and the Mercedes. Though these cars aren't
17 completely finished yet and they're not in the best
18 condition, they still need lots of work, I think we can
19 take an example from that. The BMW has two fuel tanks
20 right now, one for gasoline and one for hydrogen, so it
21 uses hydrogen, but when it -- the hydrogen runs out or
22 it needs another fuel, the gasoline is there.

23 Naturally, more research and more
24 effective ways are found to make hydrogen. I think that
25 we should follow Germany and make cars like the BMW with
26 two fuel tanks. That way, we can still have the
27 gasoline around, and then we'll slowly transfer into

1 hydrogen like we did to unleaded gas. We'll first start
2 off with gasoline and a few hydrogen tanks and slowly
3 move on until there is only hydrogen and very little gas
4 left. In this way, the Government could also have the
5 producers of cars to make more cars that -- make their
6 cars that are run on hydrogen.

7 And most of you don't know this,
8 but hydrogen gas won't be that expensive. It will be
9 probably closer to around what gas is now. And you're
10 probably asking, then, if we don't use the fossil fuels
11 for gas and for burning them for heat and electricity,
12 what can we use them for? There are many different ways
13 to use fossil fuels besides burning them. Instead of
14 burning them, we can make everything from eye makeup to
15 medicines that can cure people. And we'll still be
16 using the fossil fuels but we won't be killing the world
17 while we're doing it.

18 ANN: We as students now realize how
19 important clean air should be to us. We have researched
20 this topic thoroughly and have convinced ourselves as to
21 how harmful the emissions we put into the air really
22 are.

23 Since statistics show that
24 Alberta is the leading producer of harmful gases per
25 capita, we as individuals and also as a province must
26 work on reducing our pollution of the atmosphere. As we
27 have shown you, we can start the reduction of these

1 pollutants as individuals. Even though as individuals
2 what we can do is of small significance as to what we
3 can do as a province, we cannot rely on others to do it.
4 The place to start is with ourselves.

5 MODERATOR MILLARD: Well, congratulations. I thought
6 that was very worthwhile and very interesting. Thanks
7 again.

8 The next submission is from Miss
9 Caroline Yellow Horn.

10 CAROLINE YELLOW HORN: Good evening, everyone. I would
11 like to acknowledge and congratulate you on your efforts
12 regarding the environment. The fundamental philosophy
13 of my people, the Blackfoot, is as follows:

14 "The Creator entrusted our Mother Earth with
15 the responsibility of providing food, clothing
16 and shelter to his children, the real people.
17 (The real people being the Blackfoot) His
18 children are entrusted to maintain harmony and
19 balance with all the winged ones, four-legged
20 ones, all the ones who live in the water and
21 all that grow upon our Mother Earth."

22 It is heartwarming to myself and
23 to my ancestors that you, my brothers and sisters, after
24 500 years have discovered we share a common philosophy.
25 And I wanted to take this opportunity to inform you of
26 our efforts.

27 One: We encourage use of

1 environmental-friendly products among our people. We
2 now encourage our people to use cloth diapers, to go
3 back to breast feeding, and use recyclable products.

4 Our individual efforts include
5 disposal of domestic garbage in a proper manner and
6 dangerous products disposal. We also teach and
7 encourage our children to be environmental-conscious.

8 And the third thing we do is we
9 encourage our young people to enter into the occupations
10 that have to do with taking care of Mother Earth. This
11 is something that our elders are voicing at their
12 conferences.

13 Four: To establish and maintain
14 dialogue with Government departments and agencies to
15 compliment and enhance protection of our Mother the
16 Earth.

17 Five: We're in the process of
18 revitalizing and encouraging our people of our
19 traditions and beliefs that pertain to our environment.

20 Six: The public education being
21 provided by the television and radio is helpful with the
22 exposure of services available and practical knowledge,
23 and one of them is, you know, like instead of running
24 water but filling a cup and to dispose of, you know,
25 like paint cans.

26 And these are some of the things
27 that we're doing. And I have prepared this, and my name

1 is Holy Roads Woman. That's the name that's given to me
2 by my people. Also, I'm known as Caroline Yellow Horn,
3 according to your society. I'm a North Peigan, and
4 that's a tribe of the Blackfoot Confederacy. And I
5 just -- I always like to take an opportunity whenever
6 there is public hearings to voice the concerns and the
7 philosophy of my people and how concerned we are about
8 the environment. And it's something that -- that is a
9 part of our lives, and it's so important for us,
10 especially for our children, and it's sad that, you
11 know, it's -- like I say, it's taken 500 years that now,
12 since you've come to my country, that you've realized
13 the importance of taking care of it. And that's all I
14 wanted to voice tonight. Thank you.

15 MODERATOR MILLARD:

Thanks very much.

16 The next speaker is Sandra

17 Petrich.

18 SANDRA PETRICH:

Hello. My name is Sandra

19 Petrich. I represent the Crowsnest Pass Environmental
20 Society.

21 The use of fossil fuel is
22 archaic, it's water under the bridge, it's passe'. The
23 long-term effects of carbon dioxide emissions since the
24 industrial revolution are now showing up in adverse,
25 negative, threatening ways. The planet is heating up,
26 our weather patterns are changing dramatically, the
27 ozone layer is ripping apart, skin cancer is on the

1 increase.

2 Carbon dioxide emissions are
3 disbursed in the air, in the wind. Yes? Out of sight,
4 out of mind, right? Wrong. Carbon dioxide stays in the
5 atmosphere doing irreparable damage.

6 Carbon dioxide emissions must be
7 reduced a target of 50 percent, not 20 percent,
8 immediately, and it should be placed upon industry.
9 Industry must adopt tough policy, new technology, such
10 as scrubbers, to prevent further increases of carbon
11 dioxide into the atmosphere. This is very expensive,
12 less profit to the companies, a higher taxation rate for
13 the working people. Our economic system must radically
14 change. Development must slow down.

15 The Government must be prepared
16 to adopt new technology, develop new energy sources and
17 provide financial backing for our scientists and
18 researchers. The environment must be our top priority.
19 The Government must provide a mandate, a vision, to
20 promote a sustainable world for future generations to
21 come.

22 The Government must develop goals
23 and objectives and leadership. They must listen to the
24 voice of the people. Example, take the Green Plan was a
25 very good piece of work by many concerned citizens. The
26 Government took the meat out of it and gave the gravy to
27 the country. Instead of sending ships and our people to

1 the Persian Gulf, use our people, give them jobs in a
2 sustainable culture. Thank you.

3 MODERATOR MILLARD: Thank you.

4 Cathy Haslam?

5 CATHY HASLAM: Our Mayor, Dr. John Erwin, is
6 disappointed that he cannot be here with you this
7 evening to personally deliver his presentation. The
8 Municipality of Crowsnest Pass appreciates the
9 opportunity to present some of our concerns with respect
10 to the development of the Clean Air Strategy. Indeed,
11 air quality is a matter of great concern to all of us,
12 and we recognize the traditional aphorism that "we foul
13 our nests at our own peril".

14 Most of us are aware of concerns
15 regarding the effects of burning fossil fuels and of
16 deforestation. Acid rain and the death of over 2000
17 lakes in the east is a sin. The loss of great areas of
18 rain forest, such as is occurring presently in Brazil,
19 is of great concern. We wonder about the hole in the
20 ozone layer but at the same time note that such holes
21 have probably occurred before and that the present hole
22 now appears to be closing. We also wonder about global
23 warming, although, again, one must recognize the
24 significant global temperature variations that have
25 occurred in the past.

26 In examining the effects of
27 burning fossil fuels, we must not overlook the human

1 needs being met by the use of these fuels. Furthermore,
2 we cannot advocate the position that all use of such
3 fuels is bad and that our people should consequently be
4 asked to no longer use these fuels and to freeze in the
5 dark. On the contrary, we must be mindful of legitimate
6 human needs and consider all the economics of any
7 proposals regarding energy use in our society. To be
8 successful, any proposed initiatives must not only be
9 viable but must also be perceived by the general public
10 to be reasonable and viable.

11 Beyond expressing our concerns
12 and perhaps refusing to buy the products of the
13 deforestation, there is probably little we can do about
14 the destruction of the rain forests in Brazil. There
15 is, however, something we can do about sulphur dioxide
16 emissions and the acid rain in the eastern part of our
17 own country, and that is to continue to remind those who
18 burn coal in the east that high-quality, low-sulphur
19 western coal is available to meet their legitimate needs
20 and that the use of western coal would not only reduce
21 their emissions, acid rain and death of their lakes but
22 would also keep Canadians employed, aid our economy and
23 reduce costs of unemployment rather than exporting jobs
24 to the United States from whom we are importing
25 high-sulphur coal. The use of western coal can be
26 further augmented by purification and size processing
27 and costs to the consumer could also be reduced by using

1 alternate forms of transportation, such as utilizing
2 pipelines.

3 Recovery of sulphur in gas
4 processing is much more efficient in recent years, and
5 unquestionably close attention should be maintained to
6 ensuring that sulphur dioxide emissions are minimized in
7 Alberta as much as possible. The utilization of
8 effective scrubbers and condensers should be designed
9 wherever appropriate and to any facility processing or
10 utilizing fossil fuels.

11 Some emissions are proportional
12 to population and become a much greater problem with
13 population concentration such as we see in our major
14 cities, the smog situation in Calgary perhaps being the
15 most notable. Many factors enter into this population
16 concentration, not the least of which are economic
17 factors, including taxation policies and levels and
18 other cost considerations which lead employers who could
19 well locate elsewhere to choose to operate their
20 business in the major cities. These taxation policies
21 could well be changed, leading to an economically-level
22 playing field across the province and encourage
23 decentralization of business, industry and population
24 and consequent decrease in concentration of emissions
25 and smog.

26 We could also utilize biological
27 systems to reduce carbon dioxide concentrations, for

1 example, by the active promotion of large-scale tree
2 planting.

3 With respect to trees, logging
4 and the Alberta Forest Service, it should be noted that
5 over the past three decades, Alberta has had the best
6 track record with respect to silviculture of any
7 jurisdiction in North America. We continue to support
8 the position that timber is a renewable resource which
9 should be utilized by man and should be properly
10 managed. This not only implies planting but also
11 implies that trees should be harvested when mature and
12 not be allowed to fall prey to disease, to rot, to burn.
13 The recent disastrous experience in Yellowstone
14 National Park in the United States encouraged by those
15 who advocate natural rather than planned reforestation
16 serves as a shining example of what not to do.

17 We have heard arguments over the
18 past few years that nuclear power is clean, cheaper and
19 the preferred source of energy for the future. We would
20 take issue with the claim that nuclear power is cheaper
21 as true cost accounting should include the cost of the
22 massive public subsidy of the construction of nuclear
23 plants, the hidden costs of waste disposal, as well as
24 the increasingly apparent high costs associated with
25 maintenance, leaks and contamination. In reality,
26 looking at total costs as well as health hazards,
27 nuclear power is not cheaper and is not cleaner.

Public awareness and recession economics may well dictate a transition to more of a conserver society. At the same time, the public should be provided with balanced information regarding issues, such as the use of energy, and, further, the public must be allowed reasonable individual choice. Indeed, without public support, no initiative will succeed no matter how logical it may seem in the mind of an individual proponent.

Only if they are perceived to be reasonable by the general public can any actions taken by consumers and producers to reduce emissions be practical and achievable. We hope and trust that some of the suggestions we have made with respect to improving air quality will be incorporated as part of Alberta's ultimate Clean Air Strategy.

MODERATOR MILLARD: Thank you.

Larry Frith?

LARRY FRITH: Just some elements that I would like to see in a clean air strategy for Alberta:

All government policies and programs in all areas must be formulated and implemented with a clean air objective in mind. Policies that increase energy efficiency will contribute to reduced air emissions.

Change the way the Public Utilities Board evaluates electrical utilities for rate

1 changes. Present company growth depends primarily on
2 generating and selling more electricity. It's not in
3 the companies' interest to promote conservation which
4 would reduce air emissions.

5 To change the way electricity is
6 valued, we must uncouple utility profits from their
7 sales. Utilities income should depend on the amount of
8 electrical service provided, not the amount of
9 electricity sold. If more use can be achieved per unit
10 of electricity, the utilities should receive higher
11 revenues per unit of electricity. This would allow
12 utilities to promote and invest in conservation and
13 end-use efficiency and receive better return on this
14 investment the same as they would investing in more
15 generating capacity and promoting greater electrical
16 consumption.

17 The reduced need for more
18 generating capacity would decrease the capital tied up
19 in long-term facilities. Some of the savings from
20 increased capital efficiency and reduced risk could be
21 returned to the consumer. Fewer air emissions per unit
22 of electrical service are produced, everybody benefits.

23 The largest areas of potential
24 electrical savings:

25 First is lighting. In the U.S.
26 lighting and its cooling equipment consume about 25
27 percent of all electricity. Converting to today's best

1 cost-effective hardware could save up to 55 percent of
2 the electricity used for lighting. The electricity
3 saved would reduce the need for over 70 billion watts of
4 power plants, costing 85 billion to build and 18 billion
5 a year to operate. The figures are probably true for
6 Alberta once adjusted for differences in size.

7 Electrical motors: Electronic
8 adjustable-speed drives, new high-efficiency motors,
9 plus other improvements in choice, maintenance, sizing
10 and controls can reduce electricity required by these
11 motors in half.

12 Appliances: New high-efficiency
13 appliances can run on 50 to 90 percent less than the
14 standard models. Electrical savings programs must be
15 planned, designed, financed, built and maintained just
16 like programs to build power plants. Their product,
17 more electrical services per unit of electricity
18 produced, is as much a resource as oil, coal or natural
19 gas.

20 Although the increased cost of
21 energy-efficient technologies is recovered in a
22 relatively short time, they're often underused.
23 Consumers seldom buy on efficiency, so demand must be
24 pushed by government and utilities.

25 Immediately install electrical
26 generators in all existing dams and promote
27 non-polluting generating facilities on irrigation

1 canals, etcetera.

2 Implement programs to make use of
3 industrial waste heat wherever possible before any
4 increase in coal-fired electrical production is
5 approved. Besides the co-generation of electricity and
6 direct use of waste heat near the source, hot water can
7 be carried great distances in insulated pipe. This
8 water can heat city buildings and homes directly or act
9 as a source from which heat pumps can transfer heat into
10 buildings. Heat pumps would then become a reliable,
11 efficient alternative heating method in Alberta's
12 climate and could make even low-grade hot water usable,
13 helping reduce overall air emissions. This could be
14 kept in mind when plant siting and residential zoning
15 plans are created.

16 Implement energy-efficient
17 building standards in Alberta. The life span of
18 buildings is at least 50 years. They should be built to
19 reflect the energy efficiency likely to be required 25
20 years from now.

21 Research in Saskatoon has shown.
22 how to build super-insulated houses which can be heated
23 for one to \$200 in Saskatchewan's climate. Such houses
24 require heat exchangers for adequate ventilation, but
25 these clear the interiors of many of the pollutants
26 commonly found in homes.

27 Ensure that Alberta's forest

1 carbon sink is not depleted. Policies must prevent more
2 forest products being used than are replaced on an
3 annual carbon basis.

4 Eliminate the adding of air
5 pollutants from cultivated land and increase the soil
6 organic matter as a carbon sink. Most Alberta soils are
7 still losing organic matter due to non-sustainable
8 farming practices. As the organic matter breaks down,
9 it releases CO₂, methane and other pollutants. Alberta
10 soils now contain about half their original organic
11 matter. Farming practices that returned soils to their
12 original organic matter level would remove massive
13 amounts of CO₂ from the atmosphere while increasing the
14 nutrient and water-holding capacity of the soils and
15 improving their productivity.

16 Adopt a no net increase of CO₂
17 emissions policy. Increases in Alberta CO₂ emissions
18 can be compensated for by increased forestation to
19 remove equivalent amounts of CO₂ from the atmosphere.
20 This is a cost of production. Much of this forestation
21 may have to be done in other countries. Our CO₂ goes
22 into the world's atmosphere; it doesn't matter where
23 it's recaptured.

24 Implement true accounting and
25 economic methods. The true cost of any product must
26 include the disposal of it and its breakdown products,
27 along with the cost of correcting any negative

1 environmental effects caused by its production and use.
2 If these costs are not included in the product price,
3 it's false accounting. It asks taxpayers to pay for the
4 product's problems instead of the producers and users of
5 the product. Shareholders pocket money as profits
6 before all true costs have been paid, leaving present
7 and future generations of the public to pick up the tab.
8 We're stealing from our children's economic well-being.
9 Including all the true costs of a product's price will
10 increase production efficiencies and reduce pollution.

11 Probably most important,
12 eliminate the fighting between the Provincial and
13 Federal Governments on environmental matters. Too much
14 time and resources are spent telling Ottawa and
15 Canadians why Alberta cannot meet federal targets.
16 Spend the time and resources working with the Federal
17 Government and industry to work out how Alberta will
18 meet those targets. The world environment is more
19 important than the governments of Alberta, Canada and
20 their politicians.

21 All of these proposals have
22 benefits beyond reducing air pollution. The change in
23 ways of thinking their implementation would bring about
24 could create a more efficient and healthy Alberta.

25 Thank you.

26 MODERATOR MILLARD:

Thank you.

27 That's the list, ladies and

1 gentlemen, of people who have indicated they wish to
2 speak.

3 Would there be anyone else who
4 would like to speak? Yes, sir?

5 ART DAVIS: If I'm a little unsmooth in this,
6 forgive me; I didn't have much notice you was going to
7 have this meeting, so I didn't have much time.

8 MODERATOR MILLARD: Could you perhaps give us your
9 name.

10 ART DAVIS: Art Davis, sorry --

11 MODERATOR MILLARD: Thank you.

12 ART DAVIS: -- from Sparwood, B.C.

13 We hear so much about a
14 greenhouse effect and we hear so much about ozone, and
15 it has become the buzz word of the day. We hear a whole
16 lot on this on press, the press has picked it up, and
17 it's become the fad on press, it has become the fad in
18 government, and yet there's some glitches in this that
19 nobody seems to be hearing.

20 There are men and women and
21 environmentalists that I hear that just awe me on what
22 they have to say, and it's totally different than what
23 we are hearing in the press and what we are hearing from
24 the hand-wringing in government. Perhaps we should have
25 a little look at some of this, because there are other
26 ideas, okay?

27 First off, let's have a look over

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1 here, greenhouse effect, okay? Greenhouse effect, the
2 theory is that the rays of the sun penetrate through the
3 atmosphere, including the ozone layer, strikes the
4 earth, some is absorbed in the earth, others is
5 reflected, right? The theory is, then, that we have
6 some of this reflected back off of the ozone layer and
7 other layers in the atmosphere and retained on the
8 earth's atmosphere. But there's so many glitches in
9 there, there's so many variables that I could guarantee
10 you that that's pure speculation, 100 percent.

11 It goes likethis: They say
12 greenhouse here. Well, let's just call this a cloud.
13 What does that cloud have to do in this whole cycle?
14 Answer? Nobody's been able to answer that. They aren't
15 even asking the question, except for a very few
16 scientists. The cloud can be a reflector. As it comes
17 in between the earth and the sun, it reflects the light
18 back. The cloud also becomes a heater. The earth is
19 one massive heat engine. It has a very intricate and
20 very complex inter-action between the atmosphere, the
21 hydrosphere, your gases in your atmosphere, and nobody
22 has the answer. I'll tell you that right now.

23 Now, what you have is a situation
24 where they have computer-modelled greenhouse effect.
25 Illustration to the effectiveness of greenhouse -- or of
26 computer modelling is reflected in new automobiles and
27 aircraft. They're having a tremendous amount of

1 productivity problems and accidents caused by faulty
2 modelling, okay? Because computers aren't perfect and
3 the people who feed them are not perfect.

4 Now, the Cray II computer, as I
5 understand it, is the world's largest computer, it has
6 the largest capacity of any on the earth. It cannot --
7 and they have tried -- well, let me just set the stage
8 for this. Weather forecasting is one of my pet studies.
9 I read lots, study lots, and I have picked this as kind
10 of a fun thing. It's awesome to see that, in 1886,
11 '85-'86, they could weather forecast to 62 percent
12 accuracy. Today, it's 65 percent. You don't hear the
13 weather forecast; you hear the weather guess on the
14 radio, and that's why. When they try to model the
15 world's weather in these massive computers, it's
16 virtually impossible to model sufficiently to be able to
17 come up with an output that is accurate.

18 What does clouds do? Omnino
19 (phonetic), the big current that comes up against the
20 Chilean coast and just raises pure stink with our
21 weather, the Mid-West. Why? How does it work? It also
22 has a reverse. What makes it tick? How does it
23 interface with the atmosphere? How does it interface
24 with the clouds? Questions totally, absolutely
25 unanswered.

26 We have a problem of ozone.
27 Ozone is a problem, you know, in cities. It's a very

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1 definite health hazard in our cities. Every time Dad
2 uses the drill or Mom uses the electric mixer, every
3 time that you see a spark, that you smell that little
4 odour, that little odour you're smelling is ozone. It's
5 an electrically-conducted gas.

6 Now, when the big arc comes
7 across the sky, it's called lightning.
8 Electrically-conducted gas called ozone is created.
9 That's nature's way of providing us with ozone, okay?
10 Now, it also gives another benefit of several thousand
11 pounds per year of nitrous fertilizers to the earth
12 interacting with the nitrous gases in the atmosphere.
13 So here we have a mechanism now that's going to work --
14 somewhere in this big heat engine, it's going to have to
15 work that ozone from the lightning strike into that
16 ozone layer that we're talking about here, okay?

17 Ozone created by -- man-made
18 created ozone has the same properties. Ozone is ozone,
19 right? Okay. So ozone, then, from the cities should be
20 scrubbing and moving upwards into that so-called
21 depleted area, which is just theorized that these CFCs
22 that the young ladies were talking about is going to
23 deplete it. That's only theory, okay? They are
24 guessing that this will happen.

25 But something is askew. We're
26 missing something like 25 percent of the production of
27 CO/2. Where did it go? The scientists haven't a clue.

1 We're not considering things like plankton in the sea.
2 But we wring our hands over the rain forests, but what's
3 happening in the planktons? There's more to this than
4 meets the eye, a lot of hype, but there's a lot of fact
5 that's missing.

6 Please understand, I'm not going
7 against -- you know, trying to discourage anybody, but
8 understand there's other things to think about. And
9 when we start to go for laws and all of this other sort
10 of thing, we're going to have to consider the fact that
11 we're not dealing with full facts. I'm sure we have
12 businessmen here. Would you make a decision on just
13 guesswork? Absolutely not. You would want the facts,
14 all of them, a good solid case before you went to your
15 banker for funds, before you tried to market a product.

16 And here we are; if we jump in
17 here and we overshoot and really hammer on with these
18 laws and regulations, the absolute guaranteed outreach
19 of this is that you and the Neanderthal is going to have
20 a lot in common. If you like anywhere near the standard
21 of living that you're living and the type of lifestyle
22 that you're accustomed to, there are things that can be
23 done to mitigate some of this problem. There is
24 problems; there's no doubt at all about that. But we're
25 focusing on minute little bits without looking at the
26 whole. We have got to look at the whole and have facts
27 and not fantasy, not computer models, which we're

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1 having.

2 We have commercial scientists
3 like Suzuki and those fellows. It makes good press, but
4 when the rubber hits the road and we're really dealing
5 with down-to-the-earth nitty-gritty, it don't work.
6 You've got dead serious problems.

7 The young lady speaks of
8 hydrogen. Excellent fuel. A problem: Extremely
9 dangerous to handle, and so it does not make a very good
10 commercial fuel. There's a company just out in North
11 Vancouver who has come up with -- well, these things
12 have been around for a hundred years, fuel cells. So
13 now they have one that the U.S. energy department is
14 looking at for an automobile engine. I hope and pray
15 that it works, but the neat thing is that they are
16 considering to -- somewhere you have to come to
17 hydrogen.

18 Hydrogen's a unique fuel. We can
19 get it from methane, and their proposal is to get it
20 from coal, methane. Coal; very abundant on the face of
21 the earth, we have lots of it, very clean. You say, oh,
22 no, this guy's nuts. No, not nuts, just practical.

23 You see, what you're screaming
24 about with acid rain, you're screaming about an 8
25 percent Pennsylvania coal being burned in the coal-fired
26 plants. That's what the ki-yiing is about. And it's
27 produced a problem.

1 I personally -- I'm involved in a
2 wee tiny little coal mine endeavour that we're trying to
3 get off the ground. My lab results -- my greatest
4 sulphur in the coal that I'm dealing with is .42
5 percent. I have some as low as .1 percent. Amazing,
6 isn't it? There is something besides Pennsylvania
7 high-sulphur coal that can be used.

8 Coal is a very versatile fuel.
9 You can make petroleum out of it. They couldn't
10 understand why the Nazis in World War II kept flying,
11 they just kept going whenever they bombed their oil
12 fields. They made it out of coal. Today, South Africa
13 is virtually completely independent of petroleum because
14 they make it out of coal. There is no Persian golf with
15 them, and it can be with us, okay?

16 Now, we'll go on to some of these
17 ways that we've got to have energy. There's no way of
18 getting around it. And Alberta can ki-yi all they want
19 to. Unless you get the Soviet Union, you get India, you
20 get the rest of the world to agree 100 percent and work
21 with you, your endeavours are kind of paltry.

22 Okay, we have nuclear, which was
23 mentioned by the lady back here. Nuclear is an
24 interesting thing. It's extremely polluting in the
25 sense that, if you release radon gas, it can cause
26 downwind problems, stillbirths, cancer, you name it.
27 It's a dandy. You have radio-active waste that defies

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1 description. How do you get rid of it? You have
2 neutron bombardment of the container vessel, which
3 weakens this thing, it starts to crack, and now you've
4 really got a problem on your hands. It will rival
5 anything of Chernobyl, which was a cooling problem. It
6 wasn't a container vessel problem, okay? Extremely
7 expensive, long lead times to put it on stream.

8 You have hydro power. And, once
9 again, you have a massive destruction of the earth's
10 surface. It's permanent or for massive ages to come.
11 You have things like sedimentation and all this in it.
12 That's a -- you know, there's one extremely expensive to
13 build.

14 Then you have wind, sun. Most of
15 your -- I seen a picture here someplace -- bigger arrays
16 of generators are necessary. It's all right for this
17 gentleman out here to have one for his farm. That's no
18 problem. And it's good for a local power source
19 situation, but all of those that are on stream are big
20 farms of these things. So again you're alienating land,
21 which everybody complaints about. So you can't have
22 everything, you can't have both, okay? Just like the
23 hydro dam, okay?

24 The -- well, you have fuel cells,
25 for instance. Up until now, they've been very expensive
26 and they're very large, and they use hydrogen as a fuel,
27 and all of our NASA space vehicles generally are powered

1 with fuel cells. Very efficient, excellent machines,
2 but they have that -- hydrogen is highly explosive and
3 very dangerous.

4 I've already shared with you
5 about the North Vancouver unit, which we're definitely
6 hoping does come on stream. If it works, I would sure
7 like to have one. I run my truck on propane right now.
8 Because I'm not against environmental -- you know, it
9 just may seem like that's the fact. That's not it. I
10 love my propane. It's probably one of the most
11 desirable fuels around, in a practical sense, for
12 distribution and so forth.

13 Okay, then you have -- well,
14 let's go to biodigesters. This is something that
15 nobody's ever -- you know, you hear about all these
16 waste problems, air pollution from your land fills, and
17 yet I know of a little company that's on the Vancouver
18 Stock Exchange expressly for biodigesters and biogas.
19 It's a unique machine in that you use anromatic
20 (phonetic) instead of aeromatic (phonetic) bacteria,
21 aeromatic in the cesspool, and anromatic, which excludes
22 air from this system.

23 I'll illustrate this from a
24 gentleman in South Africa. His name is John Frey
25 (phonetic). And John has a large hog farm and generates
26 17 pounds of manure a day, so he feeds this into a
27 biodigester. What it does, it produces hydrogen gas the

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1 young ladies was talking about here. John uses it,
2 compresses it successfully and uses it in his tractor,
3 all of his trucks and vehicles that he has on the farm.
4 It goes to his generator to run his generator. It also
5 goes to his home where he heats his home, and he also
6 cooks with it. It's a very effective way of working.

7 I was just talking yesterday with
8 a gentleman from East India -- from India there, and he
9 was just saying that they had -- him and two brothers,
10 they had their homes in a kind of a circle, a little
11 digester in the middle, and it took about two shovels
12 full a day in there to produce the gas that these three
13 families needed. A very overlooked method of solving
14 some very significant problems.

15 Okay, natural gas: Natural gas,
16 very expensive to access. You have the infrastructure
17 of the pipelines and so forth. But it's a very good
18 fuel. Natural gas, though, you have to understand, is
19 98 percent or 93 percent, something -- maybe one of
20 these gentlemen could probably tell me better --
21 methane, again, this fuel here.

22 Now, we also have one other item
23 that we -- oh, and the other thing is expensive -- it's
24 going to be very expensive. All of your regulations are
25 off of it now, and look for natural gas to go through
26 the ceiling. The United States of America loves
27 Canadian gas.

1 So we're going to have to find
2 something that will take the place of it, because a lot
3 of your generators, your electric and all that, are
4 fired not by coal, as most would think, but by natural
5 gas. But now as a good manager, I would be looking for
6 a more inexpensive fuel to produce my electricity. And
7 we have it right here in Alberta, coal, low-sulphur,
8 high-quality Canadian, Albertan coal. Let's look at it,
9 see what we've got.

10 First off is the primary gas
11 released is methane, carbon and hydrogen, okay? Now,
12 you can blend it to address varying needs, so if you
13 don't have one -- you know, one seam is one quality and
14 another is another, you can blend this thing and come up
15 with a viable product that's usable.

16 We already have technology to
17 mitigate nitrous oxide and carbon dioxide. I would
18 bring to your attention an article here from November
19 1990, Canadian Mining Journal, and it's -- the setting
20 is Cold Lake, Alberta. They have completed an
21 11.7-million-dollar joint project led by Esso Resources
22 and TransAlta Resources investment, and what this
23 essentially is is a portable unit. They steam the --
24 they bore holes and they steam the heavy oil, of which
25 there is a fair amount, I guess, by the way it looks.

26 Now, also, Lloydminster has large
27 fields of heavy oil like Venezuela does. You can't

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1 really pump it. It's kind of like tar, eh. So what
2 they do is they inject steam, okay?

3 Now, this little unit here that
4 they've been working with is just a small unit, it's
5 portable so they can move it through the field, but it's
6 unique in that they have reduced the sulphur dioxide
7 emissions by more than 70 percent for sub-bituminous
8 coal and more than 80 percent for bituminous coal, which
9 is what we have in this area here.

10 These reductions are achieved at
11 only about 40 percent of the capital cost and 20 percent
12 of the operating cost of flue mass scrubbers, which is
13 most of what -- you probably heard about, scrubbers that
14 go on the stacks. Well, this little gismo here, good
15 old Canadian technology -- of which we have more too, we
16 have fluoridized beds over here -- coal is one of your
17 finest fuels that you possibly can have, and Alberta has
18 lots of it. Let's not sell it short.

19 This low-nitrogen no-sulphur unit
20 did also cut nitrogen oxide emissions more than 80
21 percent and remove up to 80 percent of coal fly ash.
22 Now, you might not understand that terminology. Fly ash
23 in coal is simply the unburnable part, you know,
24 something in there that can't burn. Generally, we're
25 looking at various and sundry minerals. There's a wee
26 whisper of a trace sometimes of heavy metals, but not
27 that much. It's recoverable, it's reuseable. It's a

1 very usable product, the fly ash.

2 When you have clinker, which is
3 also a product -- like, if you have silicone, you read
4 sand -- and things in -- impurities in your coal, you
5 will come out -- if it is burned in the fire box, you'll
6 have -- in the grates, you'll have a thing called
7 clinker. You might see it as you walk along the
8 railroad where an old steam engine has been. It looks
9 like molten glass, because, essentially, that's what it
10 is. And this is usable in the construction industry.
11 Again, a very versatile fuel. Even the by-products are
12 usable, okay?

13 So, anyway, if these people
14 switch over, you'll be looking -- now, this thing
15 burns -- let's just see if we can find this for you
16 here -- this right now burns 17 -- at a rate of 17
17 million b.t.u.'s per hour. That's a fair burn, okay?
18 The units now on line are 180 million b.t.u.'s per hour.
19 This could mean they are going to have to switch from
20 natural gas, because with deregulation, it's going right
21 through the ceiling.

22 Now, economics definitely has to
23 be a factor in this. I believe, like the ladies'
24 presentation here, how we approach this has to consider
25 our economics, our lifestyle and all of this other sort
26 of stuff, other ways of thinking besides the hype in the
27 press that you hear. I've tried to share just some of

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1 these things, but you can be an informed individual.
2 You don't have to be in the dark, and you can make a
3 sane decision.

4 You see, we complain about carbon
5 dioxide, for instance, let's just say. This has just
6 been added, as you said, was it, I believe, to the
7 pollutant list? Carbon dioxide -- if you study
8 paleoclimatology, which is just a big word for saying
9 ancient climate, paleoclimatology will show you that the
10 carbon dioxide levels of the earth in ages past many
11 times over has been far in excess of what you see today.
12 Again, a non-problem.

13 What -- nature's way of
14 responding to excessive carbon dioxide is it produces
15 more lush vegetation. This is where the burning of the
16 rain forest can be a -- present a problem. This is
17 where the Canadian Government -- I think you mentioned
18 reforestation. Right on, okay? Because, with the
19 higher carbon dioxide, then there is this increase in
20 vegetation.

21 So there is so much that we have
22 not touched on in understanding what is going on in our
23 atmosphere, in our earth. I have studied and studied
24 and studied and studied for years. I'm a reading freak.
25 I read just about anything except sports. And I'm
26 telling you right now, the more I know and the more I
27 understand, the more impressed I am at how little I

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1 understand and know.

2 And I'm also impressed too as I
3 understand how science and scientists work. I am very
4 disappointed. A real scientist you will have no trouble
5 with, but what we have now is a political system of
6 where you must have a certain amount of prestige. You
7 do this by publishing. Publish or die; that's the word.
8 And oftentimes, these men and women -- not so much the
9 women folk but -- the men, they publish just for the
10 simple sake they got to publish or die, and oftentimes
11 they'll publish research that basically starts good but
12 they never have the opportunity to carry it through.
13 They have a reputation that must be maintained.

14 I am delighted to see that we're
15 getting some breakaway scientists, men and women of
16 credentials that are beginning to say never mind all of
17 that, we have a responsibility to the earth that -- we
18 and the people that we are part of, and they're
19 beginning to ask honest questions and demand honest
20 answers, and when they write, it would behoove us to
21 listen.

22 And this bothers me, because
23 these men and women -- I call them ecologists. A lot of
24 them are, some of them are not, but, nonetheless, it
25 amounts to the same thing, as, you know, affecting
26 ecology -- are not being heard. A lot of people, as I
27 call them, are airheads and brain dead. Brain dead is

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1 where there is a lack of mental activity. And these
2 people are the ones you see in the headlines, you hear
3 on -- you see on t.v., it's on the radio. Look out.
4 Rather be wary and search these men and women out that
5 do know and listen to what they say, because they're
6 asking the right questions and they're seeking genuine
7 answers to honest problems, and in a way that would be
8 compatible with us to live.

9 What I'm going to urge you
10 gentlemen and ladies, as you approach these regulations
11 and whatever you do, start slowly and be careful,
12 because if there's an overshoot in the regulatory
13 process, it's incredible the damage that can be done.
14 And, as you're aware -- all of us are -- once a law goes
15 into the books, it takes heaven and hell to move the
16 darn thing. You can't down-size something so easily,
17 but you can upgrade it if you find -- if you set a
18 standard and it happens to be a tad low, you can upgrade
19 it gently, successfully, because you can justify it.
20 You can say, whoa, look, we've done this and it didn't
21 work, we need a little bit more here or a little bit
22 more there. But to start to bring it down, I think
23 you're pretty well aware of the shouting that would go
24 on, eh.

25 So better to start slowly and
26 carefully with wisdom and come out gently, and you'll
27 accomplish the same thing without disrupting your life,

1 other people's lives and the whole ecological system of
2 our earth. I thank you very much.

3 MODERATOR MILLARD: Thank you.

4 Is there anyone else that would
5 like to make a submission?

6 Ladies and gentlemen, I thought
7 maybe we might ask Dave Whitefield, who is with Energy
8 Conservation, part of the energy -- Alberta Energy, and
9 ask him if he would comment on conservation measures
10 that have come out of a particular program that he is
11 involved in with the Department. Dave?

12 DAVE WHITEFIELD: Okay, basically, they just wanted
13 me to comment on some of the activities that the Energy
14 Conservation Branch, formerly, now the Energy Efficiency
15 Branch, has been working with over the last ten years.

16 For the residents of Alberta, we
17 have offered what's called a hot line. It's a toll-free
18 number. They field about 6,600 calls per year in energy
19 management for the homeowners. They also run a myriad
20 of booklets, what we distribute through warehouses -- or
21 hardware stores and things like that. They're more of a
22 self-help, what the homeowner can do to save energy.

23 Another program that we operate
24 is for schools, mainly for the teachers and the
25 students. They send out -- they visit about 80 schools
26 per year and send out kits for the teachers on energy
27 management and how to get involved, and they go right

1 down to even doing public shows for the smaller
2 children, being that they're the future energy users.
3 Their main message is to use energy wisely.

4 In the transportation industry,
5 we're getting more and more involved, mainly because of
6 the oil strategies, the lease problems that are coming
7 about. There we offer programs in terms of what's
8 called a transportation energy audit. That's where we
9 go and analyze a fleet to see how efficient their trucks
10 are tuned to running correctly. We can do some routing
11 programs for them, make sure that they're using their
12 trucks most efficiently and effectively; instead of
13 sending ten trucks out, they may only get away with five
14 just by doing the proper routing.

15 And for the common person, like
16 you or myself, we have fuel economy calculators where we
17 give tips to the drivers and try to make sure you know
18 how many miles to the gallon, just tips on how you can
19 drive. They also run in the transportation sector a
20 safe driving with -- it's called Decaff (phonetic),
21 where they're teaching drivers to drive more energy
22 effective. In those areas there, they can achieve in
23 the neighbourhood of 30 percent savings just in the
24 gasoline and diesel fuels that they're using, so again
25 they're promoting energy efficiency and using that
26 energy wisely.

27 Mainly in the commercial and

1 industrial and institutional municipality type of
2 facilities, hotels like this, factories and things, we
3 have operated -- myself, I've been totally active with
4 the industrial commercial sector for the last ten years,
5 and we run what's called mainly the Energy Bus program.
6 Now, it's parked out front. You're welcome to take a
7 look at it. I have an overhead that shoots a picture of
8 it here.

9 What this bus program really is
10 is an awareness program that we operate throughout
11 Alberta on a first-come-first-served free basis, and
12 it's mainly a mobile office. It's highly visible. And
13 on that bus we send out a three -- two- or three-man
14 team to go and analyze how much power and electricity
15 and natural gas and various energy sources, where
16 they're being used within the building or the given
17 facilities.

18 So over the last ten years, we've
19 done about 1600 different audits, and as a result, we've
20 got -- being technologists and engineers, we've got all
21 kinds of numbers that we like to show off. The main
22 types of facilities that we've looked at over the last
23 ten years, this is kind of a broad base. We've looked
24 at a lot of recreation facilities; they represent about
25 12 percent of our results. Municipal buildings, being
26 all rural districts and some of the cities. Religious,
27 that includes any churches or bible colleges throughout

1 the province. Industrial, we've looked at 10 percent of
2 the industrial -- it would represent about 10 percent of
3 our energy audit. Government facilities, being
4 hospitals and things like that. Agricultural,
5 residential, hospitals. Commercial, commercial being
6 anything from a grocery store right on through to say a
7 greenhouse operation.

8 So it's pretty well varied on the
9 things that we've seen, but I think what we'll find in
10 the next slide is that there's a common denominator in
11 most of them where we can break down the types of
12 savings that we get just in 10 or 12 categories.

13 We've done the audits throughout
14 Alberta with directions for Alberta. We don't
15 concentrate on any given city. Edmonton, we've done a
16 lot of the work in pulp work there, mainly because it's
17 really the industrial heart of Alberta, they've been
18 quite active in this.

19 Now comes the real number
20 cruncher. In terms of dollars, we have looked at the
21 energy usage in Alberta. It represents about 154
22 millions of dollars per year of energy. And we feel,
23 after we've been through those facilities using low-cost
24 and no-cost energy efficiency measures or conservation
25 measures, that we can reduce this to \$125 million per
26 year.

27 Now, being big number cruncher

1 guys, we break this down in terms of kilowatt hours, and
2 that would be whether it's gas, coal or electricity, we
3 keep it in common units of kilowatt hours, so that
4 represents about 10.7 billion kilowatt hours that we can
5 reduce down to about 8.9 billion kilowatt hours per
6 year. So, in reality, that works out to about \$29
7 million per year savings or \$1.8 billion per year of
8 kilowatt hours, which we can equate back to tons of CO/2
9 being cast out.

10 Now, where do we get these
11 savings? Well, we can spin off all kinds of money
12 savings again, but this is a simple breakdown of where
13 most of our energy savings comes from. Of that 29
14 millions of dollars per year, power factor production,
15 which is simply installing capacitors, represents about
16 5 percent.

17 Heat recovery, that's where we
18 can utilize a lot of the heat losses in combustion air,
19 creating combustion air. You take hot gas, heat
20 recovery say off an arena; we're trying to put that into
21 use for ice flooding, things like that.

22 Building skin losses, 12 percent
23 savings of the total savings. Well, that would
24 apparently be by setting temperatures back at night when
25 nobody's in the building. They usually recommend five
26 to ten degrees, but take it back as far as you can get
27 away with.

1 It also includes things like
2 weatherstripping, and we consider those all- or no-cost,
3 because they can be done manually or you can do those on
4 an ongoing basis or you can spend a million dollars for
5 a computer to do it for you.

6 The lighting is a big chunk. In
7 Alberta, we figure there's probably about 25 to 30
8 percent of the energy in electricity just being used for
9 lighting alone, and of that we can probably reduce it by
10 23 percent. Mainly about four or five items there is
11 using energy efficient lighting sources. That's why you
12 see all the street lights being converted from say a
13 mercury vapour to high-pressure sodium, going from the
14 greenish mercury vapours to the yellow high-pressure
15 sodium. And high-pressure sodium lamps are about twice
16 as efficient as the mercury vapours.

17 Just in rooms like this, we'll
18 suggest that they take the fluorescent tubes and use low
19 wattage versus a standard tube. Some of the states --
20 in some of the United States, they have actually banned
21 standard 40 watt tubes, you have to buy lower watt
22 tubes.

23 Shutting off represents a large
24 chunk of those savings. I think what you're hearing
25 more and more is the use of these compact fluorescents
26 where we can go from say a 60 watt bulb down to a 13
27 watt compact fluorescent and achieve the same light

1 output. So it can represent quite a large chunk of the
2 savings. It actually represents, of those 29 millions
3 of dollars per year, \$6.6 million a year in savings.

4 Load schedule -- I'll skip the
5 miscellaneous. That it's a whole pile of stuff that we
6 don't really know where to categorize it. It's all
7 individual jobs.

8 Load scheduling, that's where we
9 get into a facility where they're using a lot of
10 different electric motors and things like that and the
11 guy has a machine running here and he has to do
12 something on another machine, so instead of turning this
13 one off, he walks over, turns that one on and uses it
14 for 20 minutes, while he's set a new peak demand, and it
15 could bring -- the utility companies have to fire up say
16 a new generator just to cover that guy for 20 minutes,
17 so they make him pay for that. So what we encourage is
18 you shut this machine off, then use that one, finish
19 with that one, shut it off and come back. That's load
20 scheduling. That's not using two things at the same
21 time when you don't need them.

22 Combustion efficiency: We find
23 just by doing simple boiler checks on combustion --
24 that's fuel-to-air ratios -- we can achieve a 2 percent
25 savings on average in this whole picture. What that
26 means is we go into a facility and check the boilers,
27 and if they're running about 70 percent efficient

1 combustion-wise, we can dial them up by using different
2 technologies or just simply using proper instrumentation
3 to set the flame and bring it up to maybe 80, 84
4 percent. Well, that's going to be 12 percent right off
5 your heating bill right there, so it's a simple thing we
6 can do.

7 What's unique in Alberta is the
8 fuel conversions. In Alberta, it costs about four times
9 more to use -- to produce or to buy one kilowatt of
10 energy in terms of electricity than it would be with say
11 natural gas. So where this really comes into play is,
12 if you're buying say electric dryers for clothes drying,
13 it's going to cost you four times to five times more per
14 unit to operate that electric driver versus say a
15 natural-gas-operated dryer.

16 Kitchens, commercial kitchens,
17 they like to do water boosting from 140 to 180 for final
18 rates to meet their health regulations. Well, we can
19 achieve that by using a natural gas booster versus say a
20 40 kilowatt electric booster. So fuel conversion has
21 been one of the key factors. Even though we're not
22 saving energy, we're going to a cheaper form of energy
23 but also, per se, a less-pollutant energy in this case.

24 Ventilation represents about 19
25 percent of the total savings that we can identify, and
26 that's simply in 99.9 percent of cases shutting fans off
27 when nobody is in the building. So we're saving both on

1 natural gas or heating costs per se, because for every
2 cubic foot of exhaust, we have to bring a cubic foot of
3 cold air in. Typical bathroom fans, say in Alberta,
4 it's about -- it would cost you a hundred dollars a year
5 just to keep that air -- just a small fan, if you left
6 it running.

7 When we get into the large office
8 towers, you can save substantial amounts just by
9 shutting those fans off at night when nobody is in the
10 building.

11 And miscellaneous is different
12 things like tank/pipe insulation, equipment
13 modifications, just like was quoted earlier, energy
14 efficient electric motors, variable speed drives, things
15 like that.

16 And water can't be overlooked
17 either, because there's a lot of hot water that we can
18 save just by putting flow restricters in and things like
19 that.

20 So it all adds up. And I can
21 bring out, you know, over 1600 jobs we've done. We've
22 probably got a thousand different cases where we can
23 save. And I think, just to sum it up, to keep it short,
24 what this means to us is, on the savings end, we're
25 getting the top, because with the Energy Bus, we have
26 identified the potential. We haven't -- we do a
27 follow-up, but we have identified that there's a

1 potential of 18 percent in electricity, 82 percent
2 savings in natural gas. This actually represents about
3 half a million tons plus per year in Alberta just by
4 using low-cost energy conservation measures.

5 So I think that pretty well sums
6 it up as best I can.

7 MODERATOR MILLARD: Thanks very much, Dave.

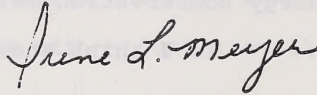
8 Does anyone else wish to make a
9 submission?

10 Well, perhaps we could break for
11 coffee, and there may be some discussion, but it can
12 carry on while you're having a cup of coffee. Thank
13 you.

14 (Meeting ended at 8:50 p.m., Thursday, Dec. 13th, 1990)

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2 I, Louella Wood, CSR(A), Court Reporter, hereby certify that
3 the foregoing pages contain a true and correct transcription
4 of my shorthand notes taken herein, to the best of my
5 knowledge, skill, and ability.

6 

CSR(A)

7 for Louella Wood, CSR(A)
8 Court Reporter

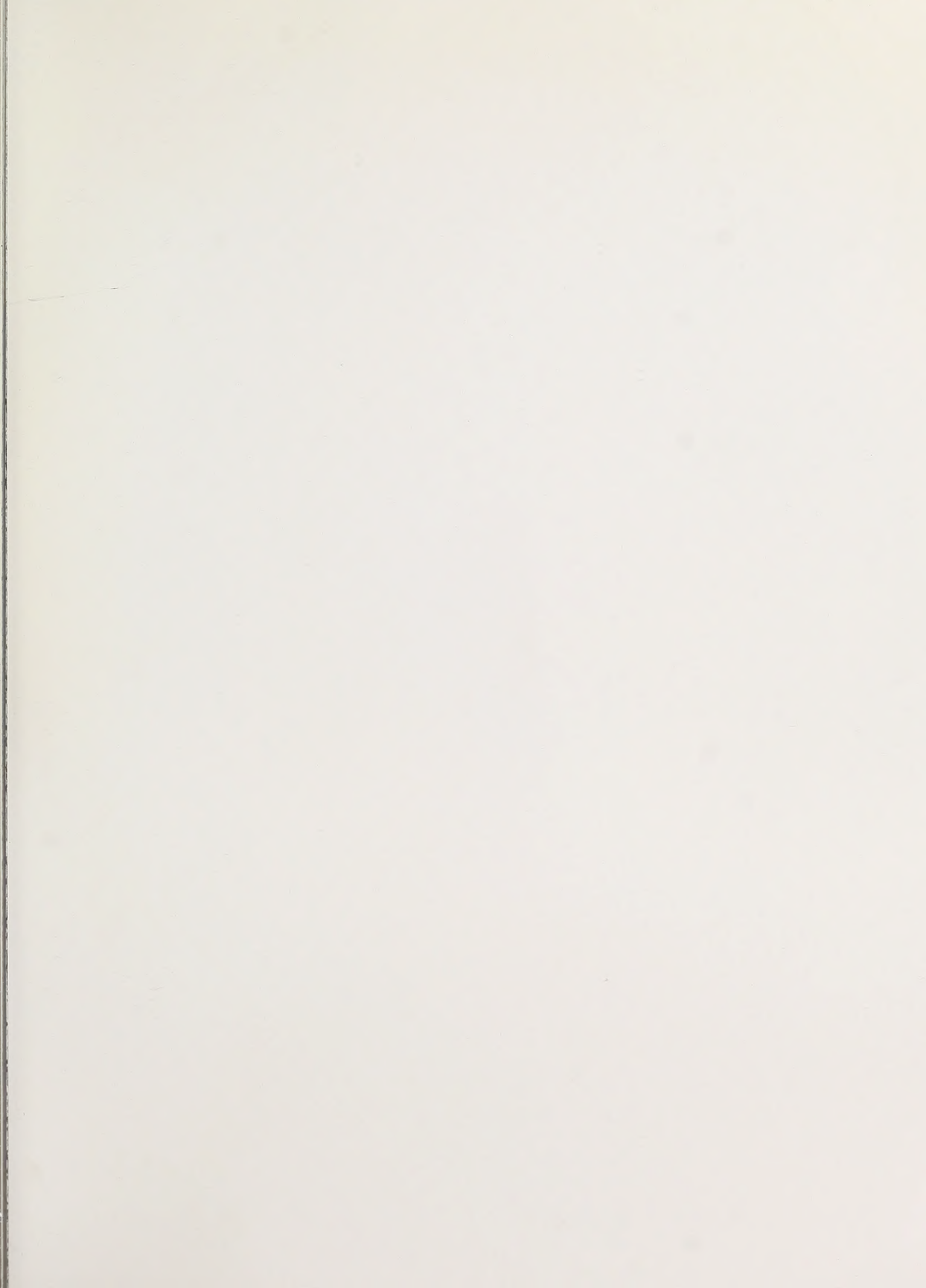
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